

Why You Can't Buy the Mac You Want, Page 86

J A N U A R Y 1 9 9 6

Macworld

THE MACINTOSH® AUTHORITY

Best Mac Games

Power Mac 8500
Most Feature-Packed
Mac Ever, Page 52

Proofing Printers
Dye-Subs for Photo
Quality, Page 94



\$4.95 CANADA \$5.95



in
here
mistakes

a r e

forgiven

Y
O
U
H
A
V
E
A
J
O
B
T
O
D
O

You are on
Your Power Mac.™
You are in
Microsoft® Word 6.0.1.
Your mind
Is racing.
Your fingers
Are racing
To keep up
With your thoughts.

Y
O
U
W
R
I
T
E

You begin
A new sentence
With
A lowercase letter.
This mistake is corrected
Automatically.

Y
O
U
R
E
V
I
S
E

Knowing there are
100 levels
Of Undo.
And 100 levels
Of Redo.
Just in case.

Y
O
U
W
R
I
T
E

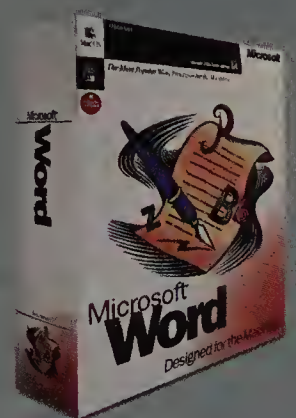
You begin a new
Sentence with
An abbreviation
You created.
It becomes
An entire phrase.
Automatically.

Y
O
U
R
E
V
I
S
E

In
Print preview
You change
Margins
Typefaces
And words.

Y
O
U
W
R
I
T
E

Until you have finished.
You click AutoFormat.
And the block of words
Can become
A letter.
A proposal.
A story.
Automatically.
You write. Because you can.



Microsoft®

WHERE DO YOU WANT TO GO TODAY?™

Contents

MACWORLD THE MACINTOSH® AUTHORITY JANUARY 1996



Apple's stunning Power Mac 8500, reviewed in all its multimedia glory, page 52.

Features

80 1995 Macintosh Game Hall of Fame

BY STEVEN LEVY Our esteemed game guru bravely shoots his way through this year's crop to pick the ten best plays of 1995.

86 Why Apple Can't Meet Demand

BY CHARLES PILLER Faced with crippling parts shortages and a wishy-washy commitment to the clone market, Apple is up for some hard times. A special report on the state of the Mac.

94 Full-Proof Printers



BY JIM HEID Need true-life color for your proofs? Think dye-sub. Macworld Lab tests seven printers for text and image quality to uncover the clear winners.

102 Accounting for Growth

BY JAN GILLESPIE As your business grows, so should your accounting program. *Macworld* compares midrange programs to find the best solution for your burgeoning business.

News

29 MacBulletin

30 **News** Dual NuBus/PCI Clone
• This year's hot new games • QuickDraw 3D, and more

37 **Power Mac News** Macs accelerate into the twenty-first century

39 **Macworld Online** Anytime, anywhere pickup games • *Macworld's* GameLine

41 New Products

What we've been waiting for—an innovative Mac clone. Read about it in News, page 30.

Opinion

17 State of the Mac

BY ADRIAN MELLO Judging the Mac's real success.

21 Letters

139 The Desktop Critic

BY DAVID POGUE Launcher mania.



CPUs gear up for the next century, page 37.

143 Conspicuous Consumer

BY TOM NEGRINO Utilizing user groups.

240 Viewpoint

BY MARJORIE BAER Happy New Millennium—what's in store for the year 2001?





It's official—Marathon is better than Doom II. Find out why in our Game Hall of Fame, page 80.

Graphics

- 112 News** Blazing trails with Painter 4.0 • New filters, 3-D for KPT 3.0 • Tomorrow's image-setters today, and more
- 118 Expert Graphics**
BY CATHY ABES Graphics professionals share their secrets.

At Work

- 120 News** A usable Lotus Notes • Full Contact is back with 3.0 • Newton add-ons, and more
- 123 Working Smart**
BY JIM HEID GeoPort telephony arrives.
- 127 Quick Tips**
BY LON POOLE Tips, tricks, and shortcuts.

Networks

- 132 News** ARA 3.0 promised (again) • ISDN products coming on strong • A rockin' Mac network, and more
- 135 PowerBook Notes**
BY CARY LU Getting the most from your portable *in* the office.

ON THE COVER

Illustration by Matsu

Buyers' Tools

- 147 Editors' Choice**
Top picks from our comparative articles.
- 153 Star Ratings**
Hardware and software reviews at a glance.
- 163 Streetwise Shopper**
Hardware and software bargains: discounts, bundles, upgrades.



Why Apple's market-share losses won't be over anytime soon, page 86.

12 How to Contact Macworld



January 1996, Volume 13, Number 1 Macworld (ISSN 0741-8647) is published monthly by Macworld Communications, Inc. Editorial and business offices: 501 Second St., San Francisco, CA 94107, 415/243-0505. Subscription orders and inquiries should be directed to 800/288-6848 or 303/604-1465. Subscription rates are \$30 for 12 issues, \$60 for 24 issues, and \$90 for 36 issues. Foreign orders must be prepaid in U.S. funds with additional postage. Add \$18 per year for postage for Canada and Mexico subscribers. Add \$69 per year for postage to all other countries. Second-class postage paid at San Francisco, California, and at additional mailing offices. Postmaster: Send address changes to Macworld, P.O. Box 54529, Boulder, CO 80323-4529. Printed in the U.S.A.

Reviews

- 52 Power Macintosh 8500/120**
System
- 54 Infini-D 3.0**
3-D software
- 55 ArcView 2.1**
Geographic information systems software
- 57 DeltaGraph Pro 3.5**
Graphing software
- 59 Kodak Digital Camera 40; QuickTake 150**
Digital cameras
- 61 Fargo FotoFun**
Dye-sublimation printer
- 63 Arcserve for Macintosh 1.5**
Backup program
- 65 Radius Telecast**
Nonlinear editing system
- 65 HoTMetaL Pro 2.0**
Web authoring software
- 67 Digital Fotovix IIIS-D**
Video slide scanner
- 69 Meeting Maker XP 3.1**
Group scheduling program
- 69 Encoder Pro; Presenter TView**
Mac-to-TV converters
- 71 SoftBoard Model 205**
Electronic whiteboard
- 73 Links Pro CD**
Golf-simulation game
- 73 Full Throttle**
Graphic adventure game
- 75 King's Quest VII: The Princeless Bride**
Adventure game
- 75 AmoebArena 1.0**
Strategy game
- 77 The Legend of Kyrandia, Book 3**
Adventure game
- 77 Out of the Sun**
Flight-simulation game

in
here
revelations

happen

Y
O
U
A
R
E
L
O
O
K
I
N
G
F
O
R
A
N
S
W
E
R
S

You are on

Your Power Mac.™

You open

Microsoft® Excel 5.0a.

You begin

With a hunch.

You begin

At zero.

1

You open a worksheet.

You type "Jan."

You use AutoFill

And the rest of the months

Are filled in for you.

Automatically.

3

You want to slice

And dice your numbers.

You build a PivotTable®

To see them

From any perspective

You want.

4

You see

Patterns form.

You come

To understand.

You get it.

2

You enter numbers.

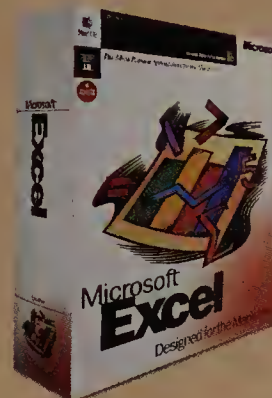
You click AutoFilter

And the data you want to see

Rises to the top

So you can focus on

What you need to focus on.



Microsoft®

WHERE DO YOU WANT TO GO TODAY?™

AnthroCarts!®



AnthroCarts are *so* flexible. You have dozens of shapes and sizes to choose, plus over 50 accessories to configure your cart exactly the way *you* want.

And they have a Lifetime Warranty! Made of steel and high density particle board, these AnthroCarts are as tough as nails.



See them all in our catalog, then call us direct to order. We'll ship to you the very next business day!



Call for your
free catalog:

800-325-3841

6:00 AM to 6:00 PM PST, M-F



Anthro Corporation®
Technology Furniture®
10450 SW Manhasset Dr.
Tualatin, OR 97062
Fax: 800-325-0045
E-mail: sales@anthro.com

Since 1984. Prices from \$299. For a lower cost line for the home, ask for our SOHO catalog. GSA contract. Available for OEM applications. Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

Macworld

PRESIDENT/PUBLISHER
ASSISTANT TO THE PRESIDENT
CHIEF OPERATING OFFICER
BUSINESS MANAGER
FINANCE ASSISTANT
DIRECTOR OF HUMAN RESOURCES
EMPLOYEE RELATIONS MANAGER
NETWORK MANAGER
IS TECHNICIAN
PROGRAMMER/ANALYST
ADMINISTRATIVE ASSISTANT
CORPORATE BUSINESS MANAGER
ACCOUNTING/OPERATIONS
ACCOUNTING/FACILITIES MANAGER

Colin Crawford
Sharon Sanderson
Stephen Daniels
Lisa Buckingham
Eos de Feminis
Shelly Ginenthal
Marisa Chow
Walter J. Clegg
Dave Johnson
Dave Barrows
Ginger Von Wening
Christina W. Spence
Pat Murphy
Michelle Reyes

Macworld, published by Macworld Communications, Inc., a wholly owned subsidiary of International Data Group, publishes 27 local-language editions of Macworld around the world. Macworld also sponsors the Macworld Expo in 12 cities around the world and has interests in book and CD-ROM publishing, online services, and international research. Headquartered in Boston, International Data Group has annual revenues of more than \$1.1 billion and 7200 employees. Its publishing subsidiary, IDG Communications, publishes more than 235 newspapers and magazines in 65 countries. IDG's trade book division, IDG Books Worldwide, is the fastest-growing computer book publisher with 50 percent of the top ten selling computer books, with foreign translations in over 24 languages. IDG's research subsidiary, International Data Corporation (IDC), is the leading market-research and -analysis firm covering the computer field. Its exposition management subsidiary, IDG Exposition Services, runs 64 computer-related exhibitions and conferences in over 22 countries. International Data Group's publications include: ARGENTINA'S Computerworld Argentina, Infoworld Argentina; ASIA'S Computerworld Hong Kong, PC World Hong Kong, Computerworld Southeast Asia, PC World Singapore, Computerworld Malaysia, PC World Malaysia; AUSTRALIA'S Computerworld Australia, Australian PC World, Australian Macworld, IDG Sources, Reseller, Network World, Mobile Business Australia; AUSTRIA'S Computerwelt Oesterreich, PC Test; BELGIUM'S Data News (CW); BRAZIL'S Computerworld, Game Power, Super Game, Gamepro, Mundo IBM, Mundo Unix, PC World; BULGARIA'S Computerworld Bulgaria, Ediworld, PC & Mac World Bulgaria, Network World Bulgaria; CANADA'S Direct Access, Graduate Computerworld, InfoCanada, Network World Canada; CHILE'S Computerworld, Informatica; COLOMBIA'S Computerworld Colombia; CZECH REPUBLIC'S Computerworld, Elektronika, PC World; DENMARK'S CAD/CAM WORLD, Communications World, Computerworld Danmark, LOTUS World, Macintosh Produktkatalog, Macworld Danmark, PC World Danmark, PC World Produktguide, Windows World; ECUADOR'S PC World; EGYPT'S Computerworld Middle East, PC World Middle East; FINLAND'S MikroPC, Tietoviikko, Tietoverkko; FRANCE'S Distributique, Golden Mac, InfoPC, Languages & Systems, Le Guide du Monde Informatique, Le Monde Informatique, Telecoms & Reseaux; GERMANY'S Computerwoche, Computerwoche Focus, Computerwoche Extra, Computerwoche Karriere, Information Management, Macwelt, Netzwelt, PC Welt, PC Woche, Publish, Unit; GREECE'S Infoworld, PC Games; HUNGARY'S Alaplap, Computerworld SZT, PC World, PC Virlag; INDIA'S Computers & Communications; IRELAND'S Computerscope (Computerworld); ISRAEL'S Computerworld Israel, PC World Israel; ITALY'S Computerworld Italia, Lotus Magazine, Macworld Italia, Networking Italia, PC World Italia; JAPAN'S Information Systems World, Computerworld Today, Nikkei Personal Computing (PCW), Macworld Japan, SunWorld Japan, Windows World; KENYA'S East African Computer News; KOREA'S Computerworld Korea, Macworld Korea, PC World Korea; MEXICO'S Compu Edicion, Compu Manufactura, Computacion/Punto de Venta, Computerworld Mexico, MacWorld, Mundo Unix, PC World, Windows; THE NETHERLANDS' Computable (CW), Computer! Totaal, LAN Magazine, MacWorld; NEW ZEALAND'S Computer Listings, Computerworld New Zealand, New Zealand PC World; NIGERIA'S PC World Africa; NORWAY'S Computerworld Norge, C/world, Lotusworld Norge, Macworld Norge, Network, PC World Ekspress, PC World Norge, PC World's Product Guide, Publish World, Student Data, Unix World, Windowsworld, IDG Direct Response; PANAMA'S PC World Panama; PERU'S Computerworld Peru, PC World; PEOPLE'S REPUBLIC OF CHINA'S China Computerworld, China Infoworld, China Network World, PC World China, IDG Shenzhen's Computer News Digest, Electronics International, IDG HIGH TECH Beijing's New Product World; PHILIPPINES' Computerworld, PC World; POLAND'S Computerworld Poland, PC World/Komputer; PORTUGAL'S Cerebro/PC World, Correio Informatico/Computerworld, MacIn; ROMANIA'S PC World, Computerworld; RUSSIA'S Computerworld-Moscow, Mir-PC, Sety; SLOVENIA'S Monitor Magazine; SOUTH AFRICA'S Computing S.A., Network World S.A., Computer Mail; SPAIN'S Amiga World, Computerworld Espana, Comunicaciones World, Macworld Espana, NextWorld, PC World Espana, Publish, Sunworld, Super Juegos Magazine (GamePro); SWEDEN'S Attack, ComputerSweden, Corporate Computing, Lokala Natverk/LAN, Lotus World, MAC&PC, Macworld, Mikrodatorn, PC World, Publishing & Design (CAP), Datalingenjoren, Maxi Data, Windows World; SWITZERLAND'S Computerworld Schweiz, Macworld Schweiz; TAIWAN'S Computerworld Taiwan, Global Computer Express, PC World Taiwan; THAILAND'S Thai Computerworld; TURKEY'S Computerworld Monitor, Macworld Turkiye, PC World Turkiye; UKRAINE'S Computerworld; UNITED KINGDOM'S Computing/Computerworld, Connexion/Network World, Lotus Magazine, Macworld, Sunworld; UNITED STATES' AmigaWorld, Cable in the Classroom, CD Review, CIO, Computerworld, Desktop Video World, DOS Resource Guide, Electronic Entertainment Magazine, PlayRight, Power PC World, Federal Computer Week, Federal Integrator, GamePro, IDG Books, InfoWorld, InfoWorld Direct, Laser Event, Macworld, Multimedia World, Network World, PC Letter, PC World, Publish, SunWorld, SWATPro, Video Event; VENEZUELA'S Computerworld Venezuela, MicroComputerworld Venezuela; VIETNAM'S PC World Vietnam.

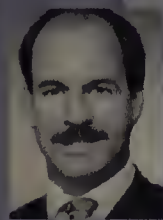
"Unlocks the potential of
Illustrator & FreeHand"
—MacUser UK, July 1995

Accelerated for
Power Macintosh

KPT Vector Effects helps your creativity blossom.

KPT Vector Effects™ makes your day-to-day Adobe Illustrator 5.5 or Macromedia FreeHand 5.0 jobs quicker, easier and better looking!

Eye-catching effects such as distortion, warping and 3D extrusion—once too difficult or simply impossible—take only seconds, thanks to KPT Vector Effects' powerful plug-ins.



"KPT Vector Effects is a must have for every Illustrator!"

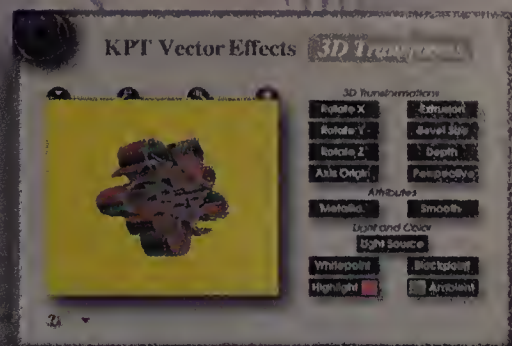
—Sean McKenna,
Adobe Illustrator
Product Line Manager

In fact, they're "the ultimate edition to FreeHand," says James Von Ehr, Macromedia Vice President and General Manager.

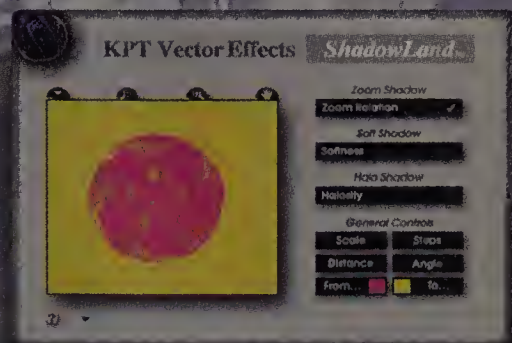
Besides what's shown above, you can apply bevel embossing, perspective distortion, color tweaking, shattering, neonizing and other cool effects to text or objects. You would have to buy multiple plug-in packages just to duplicate a fraction of what KPT Vector Effects does for you!

Best of all, KPT Vector Effects' easy-to-use interface and previews let you work intuitively in real time, without leaving your bread-and-butter drawing program.

Imagine how creatively productive you'll be with KPT Vector Effects.



Create startling 3D effects such as extrusions, bevels and lighting highlights—and never leave your favorite drawing application!



Add subtle, soft shadows, halo effects and spiraling zoom shadows in a single move instead of dozens of tedious steps!



"Envelope distortions" skew, scale, flip and shape your artwork without adding too many hard to image, unwieldy points!

To find out more, call us at
1-800-472-9025

Mention Dept. VM01

MetaTools
formerly HSC Software

805-566-6220 fax: 805-566-6367

Contact us online! AOL: hscsales@aol.com

Web: <http://www.metatools.com>

See us at Macworld San Francisco,
Jan. 9-12, Booth #2217 (South Hall).

★★★★★
Publish

MacUser UNITED
KINGDOM

MACWORLD
SWEDEN

MACWORLD
MW ★★★★★

MacWEEK
★★★★★

MacUser
★★★★★ 1/2

Publish
impact
AWARDS '95

© 1995 MetaTools, Inc. 6303 Carpinteria Ave., Carpinteria, CA 93013. KPT Vector Effects and MetaTools are trademarks of MetaTools, Inc. Macintosh is a registered trademark and Power Macintosh is a trademark of Apple Computer, Inc. Used under license. All other product names are trademarks of their respective owners.

Fax On Demand 1-800-234-0455 ext. 662

Circle 6 on reader service card

"The Best Mac Desk Ever."

NEW!

- Ergonomic
- Fully Adjustable
- Strong
- Guaranteed
- VAR Inquiries Welcome

agioTM
BEAVERTON, OREGON

Free Catalog! 800.688.2446

| Phone 503. 690.1400 | FAX 503. 690.1423 | Europe 011.41.62.631026 | Japan 011.81.3.3583.0436 | 



Macworld

EDITOR-IN-CHIEF

Adrian Mello

EDITORIAL

EXECUTIVE EDITORS

Galen Grutman, Carol Person

DIRECTOR OF EDITORIAL OPERATIONS

Jane Lagas

SENIOR EDITOR/FEATURES

Charles Piller

SENIOR EDITOR

Howard Baldwin

SENIOR ASSOCIATE EDITOR/DEPARTMENTS

Marjorie Baer

SENIOR ASSOCIATE EDITOR

Dan Littman

ASSOCIATE EDITOR/REVIEWS

Wendy Sharp

ASSOCIATE EDITOR

Cathy E. Abes

ASSOCIATE EDITOR

Linda Comer

ASSOCIATE EDITOR

Cameron Crotty

ASSOCIATE EDITOR

Elizabeth Dougherty

ASSISTANT EDITOR

Suzanne Courteau

ASSISTANT EDITOR

Jim Feeley

ADMINISTRATIVE ASSISTANT

Roxanne Gentile

ASSISTANT TO THE EDITOR-IN-CHIEF

Patricia Carberry-Harris

CONTRIBUTING EDITORS

Robert C. Eckhardt,

Erfert Fenton, Jim Heid, Steven Levy,

Cary Lu, Deke McClelland, Tom Negrino,

David Pogue, Lon Poole, Steve Roth, Joseph Schorr,

Charles Seiter, Franklin N. Tessler

INTERNATIONAL EDITORS

Osmund Iversen, Australia, 612-439-5133;

Vinicius Souza, Brazil, 55-11-829-3977;

Marianne Fajstrup, Denmark, 45-361-99100;

Michael Thevenet, France, 33-1-4904-7900;

Stephan Scherzer, Germany, 49-89-360-86234;

Guilio Ferrari, Italy, 39-2-5801-1660;

Osamu Honma, Japan, 81-35-276-0452;

Jessica Monreal, Mexico, 52-5-669-4454;

Oscar Kneppers, Netherlands, 31-23-366-814;

Toralv Ostvang, Norway, 47-22-05-30-00;

Alvaro Ibariez, Spain, 91-1-319-4014;

Nicklas Mattsson, Sweden, 46-8-453-6100;

Cuno Schneeberger, Switzerland, 41-1-387-4444;

Bahattin Apak, Turkey, 90-212-282-1180;

Peter Worlock, United Kingdom, 44-1-71-344-4377

LAB

LAB DIRECTOR

Lauren L. Black

SENIOR TECHNICAL ANALYSTS

Mark Hurlow,

Jeff Sacilotto

TECHNICAL ANALYSTS

Matthew R. Clark,

Danny Lee

COPY EDIT AND EDITORIAL PRODUCTION

MANAGING EDITOR

Charles Barrett

ASSISTANT MANAGING EDITOR

Ruth Henrich

SENIOR COPY EDITOR

Katherine L. Ulrich

SENIOR PRODUCTION EDITOR

Lisa Brazieal

COPY EDITORS

P. M. King, Gail E. Nelson

ART AND DESIGN

DESIGN DIRECTOR

Dennis McLeod

ART DIRECTOR

Joanne Hoffman

SENIOR DESIGNER

Leslie Barton

SENIOR DESIGNER/INFORMATIONAL GRAPHICS

Arne Hurty

ASSOCIATE ART DIRECTOR

Sylvia Benvenuti

ASSOCIATE DESIGNER

Tim Johnson

SENIOR DESIGN ASSOCIATE

Martha Katt

DESIGN ASSOCIATES

Rachel Arnold, Belinda Chlouber

ONLINE

EDITOR

Suzanne Stefanac

WEB ADMINISTRATOR

Chip Carman

ONLINE ADMINISTRATOR

Steve Costa

CONTENT ENGINEER

Paul Devine

ONLINE PRODUCTION EDITOR

Matthew Hawn

PRODUCTION ASSISTANT

Kristine Moss

FLUEGELMAN INTERN

Karen Liberatore

roping steer/
beating jet lag/
vibration-
dampening>>>



<http://www.toyota.com>

©1995 Toyota Motor Sales, U.S.A., Inc. Buckle Up! Do it for those who love you.

OmniPage Pro. Think of it as an accurate 1500 wpm typist who never takes a coffee break.

Accelerated for
Power Macintosh

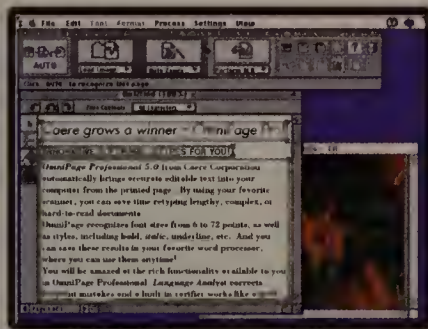


Try this powerful OCR software just once, and you'll never go back to retyping documents again.

Nobody likes wasting time typing letters, faxes and reports back into a word processor. That's why OmniPage® Pro Optical Character Recognition (OCR) software is so valuable to scanner users. It's faster and more accurate than even the fastest typist. ■ OmniPage Pro reads through each page, recognizing text in any font, from 5-point fine print to 72-point headlines. It intelligently analyzes the document for context and spelling, making smart decisions on

hard-to-read characters. It's the most accurate OmniPage software yet.

■ Easily edit and format documents within OmniPage Pro, or in your favorite word processor. It's fully customizable, so you can tailor OmniPage Pro to your individual needs. Or train it to recognize special characters and symbols. You'll save lots of time and thousands of key-strokes. ■ Even the most complex layouts are no problem, because OmniPage Pro excels at handling both text and graphics on the same page. And it features Image Assistant®, an integrated 24-bit color image editor. ■ So try OmniPage Pro today and stop retyping.



OmniPage Pro offers great OCR accuracy with high-powered text and graphic capabilities.

TRADE UP

from your scanner's
OCR software! Only
\$149*

from any version of OmniPage, WordScan, or OmniScan SE, including the Caere OCR bundled with your scanner.

Get these powerful new features:

- Increase accuracy with innovative neural network and Language Analyst™ technologies
- Easily edit graphics with fully-integrated, 24-bit color Image Assistant
- Improve recognition of hard-to-read documents with 3D OCR™ and customizable OCR training
- Recognize documents at your convenience with deferred processing
- Works quickly—it's Accelerated for Power Mac

*Suggested price
Call 1-800-535-SCAN ext.80
or contact Caere online at:
<http://www.caere.com>



OmniPage Pro.
Never retype another document.



Caere, the Caere logo, Image Assistant, OmniScan and OmniPage are registered trademarks of Caere Corporation. 3D OCR and Language Analyst are trademarks of Caere Corporation. All other registered trademarks and trademarks are property of their respective companies.
© 1995 Caere Corporation. All rights reserved.

Circle 69 on reader service card

"Adobe Systems recommends
Digital Stock as the leading
provider of high quality
stock photography on CD ROM."

You can take their word for it.



Or, you can order our Starter Pak and see for yourself.
Preview 3,000 images with our 140 page Catalog Book and Catalog Disc.
Special introductory offer, both for only \$19.95.

1.800.545.4514



© Digital Stock Corp., 400 S. Sierra Ave., Suite 100, Solano Beach, CA 92075, Fax 619-794-4041 Tel 619-794-4040

Circle 125 on reader service card

Macworld

DISPLAY ADVERTISING SALES

ASSOCIATE PUBLISHER	Matt Sweeney (415/978-3271)
SALES DEVELOPMENT DIRECTOR	Suzanne Saluti (415/975-2624)
SALES DEPARTMENT COORDINATOR	Leslie Black (415/978-3160)
NATIONAL ACCOUNTS MANAGER	Lois Brennan (415/978-3262)
ACCOUNT EXECUTIVE	Liz Pabon (415/978-3257)
NATIONAL ACCOUNTS MANAGER	Leslie Ryder (415/978-3155)
ACCOUNT EXECUTIVE	Christine Wong (415/978-3192)
ADMINISTRATIVE ASSISTANT	Eva Bosch (415/974-7310)
NATIONAL ACCOUNTS MANAGER	Sara Culley (310/545-6562)
ACCOUNT EXECUTIVE	Bethany A. Baller (415/978-3276)
ADMINISTRATIVE ASSISTANT	Margaret Level Green (714/250-1307)
NATIONAL ACCOUNTS MANAGER	Cynthia Ramsey (201/243-1197)
NATIONAL ACCOUNTS MANAGER	Paul Bonarrigo (508/872-8600)
ACCOUNT EXECUTIVE	Kelly Burke (415/978-3164)
NATIONAL ACCOUNTS MANAGER	Lisa Ladle (800/779-5622)
ACCOUNT EXECUTIVE	Kathy Poppenhagen (708/827-4477)
ADMINISTRATIVE ASSISTANT	Kim Giovanni (708/827-4477)

MAIL ORDER/CLASSIFIED ADVERTISING SALES

DIRECTOR OF TELESales OPERATIONS	Stephen R. Plevin (415/978-3138)
ACCOUNT MANAGERS/MAIL ORDER	Edward Ramirez (415/974-7413) Lisa Weisberg (415/978-3117)
MACWORLD SHOPPER	800/888-8622 Niki Stranz (415/978-3105), Carol Johnstone (415/978-3152), Shannon Smith (415/974-7414)
ACCOUNT MANAGER/MW DIRECTORY	Gabrielle Silverman Green (415/267-4521)
ADMINISTRATIVE ASSISTANT	Toni May (415/975-2638)

MACWORLD GLOBAL PRODUCT SUPPORT CENTER

DIRECTOR OF MARKETING AND COMMUNICATIONS	Kimberlee A. Luedde
MARKETING ASSOCIATE	Alisson Walsh

MARKET RESEARCH

RESEARCH DIRECTOR	Linda Lawrence
RESEARCH ANALYST	Matt McAlister
ASSOCIATE RESEARCH ANALYST	Phillip Hibbert

MARKETING

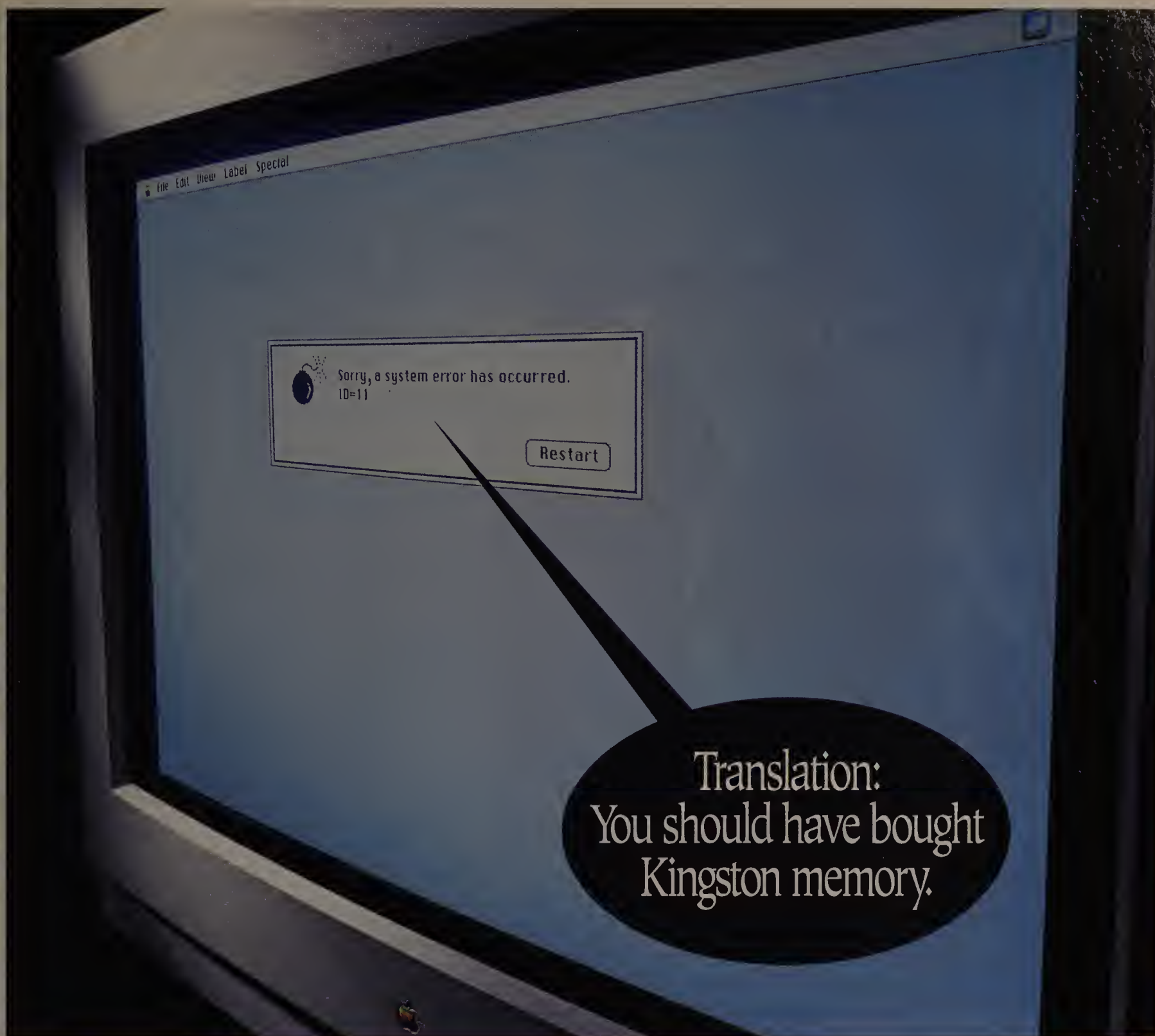
MARKETING DIRECTOR	Cynthia Koral
SENIOR MARKETING MANAGER	Jeff Julian
MARKETING MANAGER	Rhona Hamilton
TRADE SHOW/EVENTS MANAGER	Anna Noetzel
MARKETING ASSISTANT	Shannon McArdle

CIRCULATION

VICE PRESIDENT/DIRECTOR OF CIRCULATION	Angelina Beitia
SINGLE-COPY SALES DIRECTOR	George Clark
SENIOR CIRCULATION MANAGER	Lori Hitchcock
CIRCULATION MANAGER	Elizabeth Jensen
NEWSSTAND SALES MANAGER	Martin Garchar
PROMOTION MANAGER	Kelvin Gee
NEWSSTAND COORDINATOR	Dalia Schwartz
SUBSCRIPTION INQUIRIES	800/288-6848

PRODUCTION

VICE PRESIDENT/DIRECTOR OF MANUFACTURING	Anne Foley
PRODUCTION MANAGER	Cynthia Neustadt
ASSISTANT PRODUCTION MANAGER	David W. McAferty
BILLING INFORMATION MANAGER	So Fong Yip
DTP COORDINATOR	Clayton Haberman
BILLING ASSISTANT	Lily Cheung



Does it matter what kind of memory you put in your Macintosh? Well, it matters to your Macintosh. That's why you should choose Kingston memory. Nobody knows the intricacies of the Mac better than Kingston. And nobody is more fanatical about quality. The proof: We test every memory module we make. (Other memory manufacturers test about



5% of their products.) In fact, we test each one at least eleven times. And we test it in exactly the same model of Macintosh in which it will be used. So the chance of anything going amiss is remote, to say the least. Of course, if you need any help with the installation process, just give us a call—our technical support is free. Want more information about choosing the right memory for your Macintosh? Just call Kingston.



Mac OS

Only Kingston memory is 100% tested and comes with a lifetime warranty.



Call (800) 435-0677 or find us at <http://www.kingston.com>

Kingston Technology Corporation, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2600, Fax (714) 435-2699.

© 1995 Kingston Technology Corporation. Kingston Technology is a registered trademark of Kingston Technology Corporation. All rights reserved. All other products or services are the trademarks or registered trademarks of their respective holders.

Circle 201 on reader service card

SUBSCRIPTION QUESTIONS

Mainland USA 800/288-6848
fax 303/604-7644
All other locations 303/604-1465
or write Subscription Services
P.O. Box 54529
Boulder, CO 80322-4529

MACWORLD ONLINE

Contact *Macworld* editors directly via the Macworld area on America Online. On this service, readers can search current and past issues, exchange messages with editors and other readers, and attend live online events. Readers can also send electronic mail via Macworld Online's Web site (<http://www.macworld.com>) or the Internet (macworld@macworld.com).

MACWORLD IN MICROFORM

Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

BACK ISSUES OF MACWORLD

Write to Back Issues of *Macworld*, c/o Snyder Newell, Inc., P.O. Box 7046, San Francisco, CA 94120-9727; \$6 per issue (\$20 overseas). Prepayment in U.S. funds necessary. Make checks and money orders payable to Macworld Magazine.

MACWORLD EDITORIAL

MAIL OR COURIER Macworld Communications, Editorial Dept., 5th floor, 501 Second St., San Francisco, CA 94107; 415/243-0505.

AppleLink: Macworld1

CompuServe: 70370,702 Fax: 415/442-0766

LETTERS TO THE EDITOR All written comments, questions, and suggestions regarding any aspect of the magazine are read by our editor. We reserve the right to edit all submissions; letters must include your name and address. Direct all correspondence (by mail or electronically) to Letters to the Editor.

QUESTIONS AND QUICK TIPS Direct questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to *Quick Tips*, Lon Poole. Please include your name and address.

CONSUMER ADVOCATE Been burned? Really steamed? Direct your concerns (by mail or electronically) to *Conspicuous Consumer*.

NEW PRODUCTS AND UPDATES Direct press releases and product announcements (by mail or electronically) and shrink-wrapped software upgrades (by mail or courier) to *New Products*.

BUGS & TURKEYS Mail in descriptions of turkeys (flaws in conception or design) or bugs (defects or flaws in execution); copies of correspondence with vendor or telephone contact notes (if any); and your telephone number, mailing address, and T-shirt size.

STREETWISE SHOPPER To obtain an application for inclusion of special product promotions in *Streetwise Shopper*, vendors and resellers should contact Charles Barrett (by mail or electronically).

REPRINTS AND PHOTOCOPY PERMISSION Permission will be granted by the copyright owner for those registered with the Copyright Clearance Center (CCC) to photocopy any article herein—for personal or internal reference use only—for the flat fee of \$1.50 per copy of the article or any part thereof. Specify ISSN 0741-8647 and send payment directly to the CCC at 27 Congress St., Salem, MA 01970. Address requests for reprint orders and for permission to copy editorial for other purposes to Reprints and Permissions, Editorial Dept.

WRITING FOR MACWORLD Do not send us unsolicited manuscripts. If you're interested in writing for *Macworld*, send a stamped, self-addressed envelope along with a request for our writer's guidelines. Direct (by mail) to Writer's Guidelines, Editorial Dept.

FOUNDER David Bunnell
FOUNDING EDITOR Andrew Fluegelman 1943-1985

Macworld is a publication of Macworld Communications, Inc. *Macworld* is an independent journal not affiliated with Apple Computer, Inc. *Macworld*, *Macworld Interactive*, *Macworld Shopper*, *MW*, *MW Lab*, *MW Shopper*, *Desktop Critic*, *Expert Graphics*, *Quick Tips*, *Star Ratings*, *Buyers Tools*, *Streetwise Shopper*, and *Conspicuous Consumer* are registered trademarks of International Data Group, Inc. *Power PC World* is a trademark of IDG, Inc. APPLE, the APPLE LOGO, MAC, and MACINTOSH are registered trademarks, and MACLETTER and POWERBOOK are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 1996 Macworld Communications, Inc. All rights reserved. *Macworld* is a member of IDG Communications, the world's largest publisher of computer-related information.

Can't run Windows[®] 95 on his Mac!



got Orange[®]PC?

When you must run **DOS[™]**, **Windows[®]**, **Windows[®]95**, **Windows[®]NT** or **OS/2[®]WARP**, no one can take away your Mac as long as you "got OrangePC." Yes, unlike any other product on the market today, the OrangePC hardware card runs every major operating system on **all PCI and all NuBus Macs and PowerMacs**.

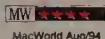
Our latest OrangePC Series 400 has an impressive list of features: the latest Apple[®] PCI technology; up to 120 Mhz 5x86 processor and 64 Mb on board; 16 bit Sound Blaster[™] in/out with game port; one parallel and two serial ports; up to 2 Mb RAM for accelerated SVGA video; and 256K cache for superior performance. It also comes with free network software to allow you to connect to Token Ring or Ethernet PC networks with **full compatibility**.

And, the OrangePC is **affordable**, with prices starting at \$799! Get a grip on your Mac!

Get OrangePC!



"16 Years of Innovation and Excellence"
1400 N. Lakeview Ave., Anaheim, CA 92807
(714)779-2772



© Orange Micro, Inc., 1995

Circle 33 on reader service card

LACIE LIMITED

offers a world of storage solutions...



Featuring TSUNAMI HARD DRIVES



LACIE
TSUNAMI



Stack in style

- High-speed drive and disk-controller technology.

- Includes switchable active termination, cables, and La Cie Storage Utilities.

- Reliable reduced-component design extends life.

\$299

Tsunami 850 MB

Quantum

540MB	3 year warranty	\$249
850MB	3 year warranty	\$299
1080MB	3 year warranty	\$349
2210MB Capella	5 year warranty	\$769
2151MB Grand Prix	5 year warranty	\$799
4.3GB Grand Prix	5 year warranty	\$1099

**Best
Value!**

INTERNAL HARD DRIVES



La Cie
Storage Utilities
FREE!

\$269

Quantum 1 GB

- ▲ High-performance drive and controller technology.
- ▲ Built-in SCSI interface.
- ▲ Formatted, tested and backed by Quantum warranties.

2.5" Hard Drives - Quantum

341MB	1 year warranty	\$199
514MB	1 year warranty	\$299

3.5" Hard Drives - Quantum

540MB	3 year warranty	\$179
850MB	3 year warranty	\$229
1080MB	3 year warranty	\$269
2210MB Capella	5 year warranty	\$689
2151MB Grand Prix	5 year warranty	\$699
4.3GB Grand Prix	5 year warranty	\$999

Brackets available for \$10 with internal hard drive purchase.



and free storage utilities.

\$99
Value

INCLUDED WITH ALL DRIVES PURCHASES



Silverlining – the acclaimed performance and management tool maximizes all your drives. Optimize, create or resize partitions, install advanced drivers, troubleshoot and much more.



VirtualDisk – creates a virtual volume for related files spread across different removable media.



DiskDup Pro – duplicate or transfer large files to and from removable media with ease.



EasyLabels – automatically catalogs and prints disk content labels.



MacBench FREE Bonus! Ziff-Davis performance management tool measures and reports on all your system components.

Order Now: 1-800-999-1312

LACIE LIMITED

Call for details, conditions, limited money back guarantee, and free offers. Prices do not include shipping and only apply to products shipped within the continental United States. Add sales tax where applicable. Joule, Joule Portable, La Cie Term, DataSafe, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd. All other trademarks are the property of their respective companies. All prices, specifications, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1995 La Cie, Ltd. All rights reserved.

LACIE LIMITED

now with
**more
versatile
choices...**



“The leading RAID value.”



JOULE PORTABLE HARD DRIVES



- ▲ High-speed Quantum performance.
- ▲ Share hard disk-sized files with diskette convenience.
- ▲ Dacking provides new security and backup solutions.

\$369
Joule 1 GB

2.5" Hard Drives - Quantum

341MB	1 year warranty	\$299
514MB	1 year warranty	\$399

3.5" Hard Drives - Quantum

540MB	3 year warranty	\$269
850MB	3 year warranty	\$329
1080MB	3 year warranty	\$369
2210MB Capella	5 year warranty	\$799

3.5" drives also available in Joule Base configurations for an additional \$60.



JOULE RAID \$1999 4.2GB RAID

- ▲ Fail-safe storage for huge graphic, music or video files.

Quantum drives bundled with Trillium Research Software configurable to levels 0, 1, 4 & 5.

8.4GB Grand Prix	5 year warranty	\$3499
16.8GB Grand Prix	5 year warranty	\$6999

SYQUEST DRIVES



EZ135MB Cartridges \$19.95

Includes FREE Cartridge AND Storage Utilities

- ▲ 13.5msec access time doubles ZIP's speed.
- ▲ EZ offers the lowest per-megabyte media cost on the market.
- ▲ Full 2 year warranty.

\$229
EZ135MB

Other SyQuest Drives

200MB Internal		\$299
200MB External ZFP Case	1 year warranty	\$369
200MB Cartridge		\$79
270MB Internal	1 year warranty	\$329
270MB External Joule Portable	1 year warranty	\$419
270MB Cartridge		\$59

2 Great Removable Options MO AND DAT DRIVES



Int. 230MB Optical Cartridge AND Storage Utilities

- ▲ Great for archives.
- ▲ Joule SmartDack™ makes sharing the drive easy too.
- ▲ Money back guarantee.

\$399
Int. 230MB Optical

Other Optical & DAT Drives - 1 yr. warranty

230MB Internal with Retrospect	\$469
230MB Joule Portable	\$469
230MB Joule Portable with Retrospect	\$539
230MB Optical Cartridge	\$19.95
8.0GB Joule DAT DDS-2 with Retrospect	\$929

DAT SPECIAL
Low price on a great backup system. Includes FREE DDS-2 cartridge and Retrospect.

\$829
Internal DAT DDS-2

Order Now: 1-800-999-1312

LACIE LIMITED

30 BIT SCAN CLARITY FOR LESS SILVERSCANNERS

LACIE
LIMITED

Silverscanner III

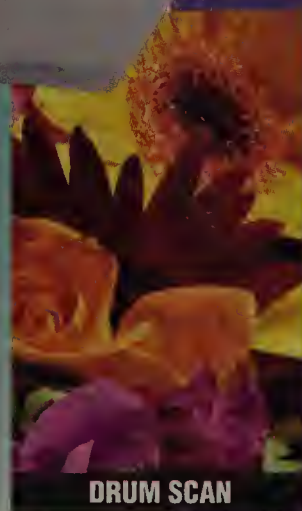


Silverscanner DTP



Compare our
drum beating
color scans

Put the extra power of true 30-bit scanning on your desktop for less. All Silverscanners feature advanced noble-gas illumination, fast scanning cycle and CCD optical sensors that capture over 1 billion colors. Get professional quality color separations, rich gray-scale scans and razor-sharp line scans. And all Silverscanners include generous software bundles featuring Silverscan easy-to-use scanning software for total creative control.



DRUM SCAN



30 BIT SILVERSCAN

Silverscanner III Package 1

Pro color, 600x1200dpi
interpolated up to 4800 dpi.

- ▲ Photoshop (full)
- ▲ Read-It Pro OCR
- ▲ Silverscan

\$1799

Silverscanner III Package 2

Pro color, 600x1200dpi
interpolated up to 4800 dpi.

- ▲ Color It!
- ▲ Read-It Pro OCR
- ▲ Silverscan

\$1499

Silverscanner DTP Complete

Desktop color, 400x800dpi
interpolated to 3200 dpi.

- ▲ Photoshop LE
- ▲ Read-It Pro OCR
- ▲ Silverscan

\$899

Transparency
Adapter

Sheet
Feeder



\$799



\$499

- True 30-bit pixel depth.
- Capture over 1 billion colors.
- The industry's leading software.
- Color previews in seconds – scans in under a minute.

...more
customer
support

Friendly!
Fast!

Toll-free tech line:
1-800-288-9919



Mon. – Fri. 5AM-7PM & Sat. 8AM-NOON PST
International 503-520-9000
Fax 503-520-9100 (24 hrs.)
<http://www.lacie.com/~lacie>



Fax On Demand 1-800-234-0455 ext. 678

Circle 52 on reader service card

The meeting's in an hour, the charts are in Windows, and you can't find the sticky with the client's address.

Let's talk System 7.5

Macintosh System 7.5

It's powerful, it's easy to use—it's the new
operating system for your Macintosh.

Millions of Apple® Macintosh® users are finding that life at the office is a whole lot easier with Macintosh System 7.5—especially in a crunch.

It's better organized, so you can be too.

System 7.5 is full of new ways to help you be more efficient. Like 'WindowShade' to let you get at what's behind a window *without* closing or moving it: a double click on the title bar and the window disappears, but the bar stays. 'Find File' now has more search criteria so you get to the document you want, faster. And the Apple menu has new hierarchical sub-menus that take you straight to control panels and applications—no more clicking your way through layers of windows.

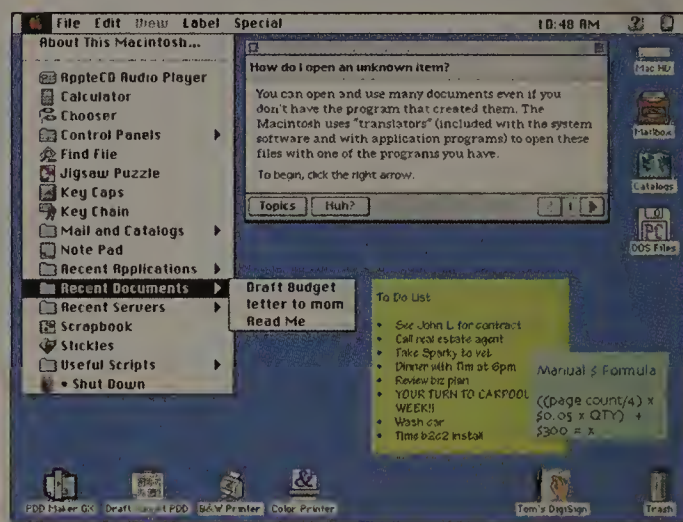
Putting it all together.

Integrating other people's work into yours is a snap with System 7.5. No matter what application or personal computer they used, System 7.5 treats their files just like Macintosh files. And now with a free copy of MacLinkPlus translators, it's even easier to share material with others.

A whole new level of on-line assistance.

System 7.5's new Apple Guide interactive help system walks you through functions step by step, pointing

out exactly what to do next. Now you can learn faster by 'doing', instead of just reading instructions.



It's powerful, it's easy to use—it's the new operating system for your Macintosh.

Of course the best time to upgrade to System 7.5 is *before* the next crisis hits. So order today by calling 1-800-950-5382 ext. 785 (1-800-361-6075 ext.131 in Canada). Or call 1-800-538-9696 ext. 250 for the Apple reseller nearest you.

Macintosh System 7.5 runs on Apple Macintosh, PowerBook and Power Macintosh computers and requires 1 MB of RAM, 8 MB for Power Macintosh systems (8 MB recommended for all systems). ©1995 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, Macintosh, PowerBook and Power Macintosh are registered trademarks of Apple Computer, Inc. in the U.S. and other countries. The Mac OS logo is a trademark of Apple Computer Inc. All other trademarks are the property of their respective owners.


Mac OS





Assaying Market Share

What's wrong with this picture?

REMEMBER THE PARABLE OF the blind men and the elephant? Each man tries to describe the huge animal based on the one part he touches. One feels the trunk and declares an elephant to be like a snake. Feeling the tail, another likens the beast to a rat. "Like a tree trunk," says the one who feels the leg. "More like a palm frond," argues the one who touches the ear. If the men had shared their information, instead of each concluding on the basis of one piece of the puzzle, together they might have assembled a true picture of the animal.

In just this way, observers who gauge the Mac solely on the basis of its slender share of the personal computer market misrepresent the overall picture. A more precise representation, derived from snapshots of various market segments, shows a robust computing platform—a product with legs, as they say.

But What about Market Share?

It's true, the Mac's share of the personal computer market has hovered around 10 percent. When Mac sales dropped to 7.4 percent in the second quarter of this year, critics saw the vultures circling overhead. Not so fast, Apple's sales bounced back to 9 percent in the third quarter—a 21 percent increase over the third quarter of 1994.

But size is not the only indicator of a healthy platform. The Mac remains the platform of choice in several market segments, especially multimedia, desktop publishing, Internet use, education, and home computing. Apple is eminently capable of providing superb solutions for these customers. Admittedly, the big player in the market attracts a lot of attention from large businesses and developers, with size alone a strong incentive for them to focus their resources on creating products and solutions for those users. Apple must fight to maintain an adequate share of the market if it's to retain its status as an independent platform. For both Macintosh users and for developers, the good news is that there are sound financial reasons to produce for the Mac.

Take a Closer Look

I have some sympathy for those blind men. Because activity in the personal computer market as a whole is so hot, it's constantly subjected to analysts' scrutiny. The steady flow of studies and surveys, each examining a different dimension of the market, makes it difficult to compose a cohesive picture of the Mac's position there. The effort pays off, though.

Among color-prepress professionals, the Mac is the computer of choice. According to a 1995 study by Griffin Dix Research Associates, the Mac holds 76.2 percent of this market, compared with 18.9 percent for Windows and 0.9 percent for Windows NT. Furthermore, the study shows that stronghold will continue and even deepen, predicting the Mac will hold a 77.4 percent share; Windows,

PCs. International Data Corporation reported in 1995 that the Mac dominates and will continue to dominate the home market. (IDC is a research subsidiary of IDG, which also owns *Macworld*, *PC World*, and numerous other computer magazines.) And the Mac is strong on the Internet and in science and engineering.

All of these are vital and expanding market segments that help build the Mac's strength. That's a picture you won't see if you focus only on the gross market-share numbers.

Software Sales

Another way to gain a useful perspective is to look at how much software has been sold for various computers. The Software Publishers Association (SPA) reported on North American software sales during the first half of 1995.

You'd expect Intel-based PCs to perform well in the traditional productivity area, reflecting the large number of sales in big business. And indeed, though the Mac OS handily outdistances DOS, the Mac doesn't fare especially well in business-productivity software categories. For example, word processors sold to the tune of \$448.5 million for Windows, but only \$31.6 million for the Mac; word processors for DOS came in at \$17.5 million. The story is the same with spreadsheets, where the Mac pulled in \$22.2



11.9 percent; and Windows NT, 6.5 percent.

The Mac also remains strong in the multimedia world. The same Griffin Dix study measured which platform is used for producing or playing motion video and found the Mac had 43.5 percent, to Intel-based computers' 52.2 percent and 4.3 for Unix.

In the education market, the Mac's vigor is even more evident. A 1995 Link Research report projected that, in 1995, the K-12 education market would buy nearly twice as many Macs as Intel-based

million compared with \$337 million for Windows and \$9.3 million for DOS. For database-management software and most other productivity applications, the same rough proportions hold constant. The one category where the Mac showed disproportionate strength was integrated software. Here it came in for \$20.6 million in sales, compared with \$40 million for Windows and \$1.4 million for DOS. That's mighty good performance for such a small hunk of the pie.

continues

The SPA report on education, desktop publishing, design, and software sales echoes the figures on the Macintosh computer's powerful presence in those markets. Home education software brought in \$14.6 million for the DOS platform, \$131.4 million for Windows, and \$46.1 million for the Mac—over a third of the Windows share. Desktop publishing software sold \$50.9 million on Windows (DOS sales were negligible) and \$21.6 million on the Mac—over 40 percent of

the Windows share. In the illustration and design arena, Macintosh software didn't just haul in more than its proportionate share, it actually outperformed Windows. Illustration and image-editing software sold \$79.5 million on Windows but \$87.3 million on the Mac (again, DOS sales were negligible). The SPA report did not measure sales in the Mac's other strong suits, multimedia and Internet software, but I strongly suspect the pattern would persist.

What's in It for Developers?

Developers determine which computers to design products for on the basis of how lucrative their efforts are likely to be. That's only natural. I hope they'll examine their prospects carefully, because a September 1995 report, again from IDC, indicates that there are significant incentives for Mac developers.

The IDC study compared the opportunities and costs of developing for the Mac market with those for the Windows/Intel market. IDC discovered that developers will get a greater return on investment in the Mac market than in the PC market, despite the smaller audience for their products. That's interesting news. What's behind it?

One key factor is that Macintosh users buy more software than Windows users—30 percent more. Another factor is that developers can still sell Mac software at prices somewhat higher than Windows software. According to IDC, because of these two factors acting in combination, the value of software sold for each Macintosh this year will average 73 percent higher than the value of software sold for each Windows machine.

It doesn't stop there. The IDC report states that if you exclude word processing and spreadsheet software—categories dominated by Microsoft—and sales of office suites, "the value of software sold per Macintosh jumps to three and a half times that sold per Wintel machine!" All of these statistics amply demonstrate that the Macintosh market's value to developers is far more than computer sales alone would suggest.

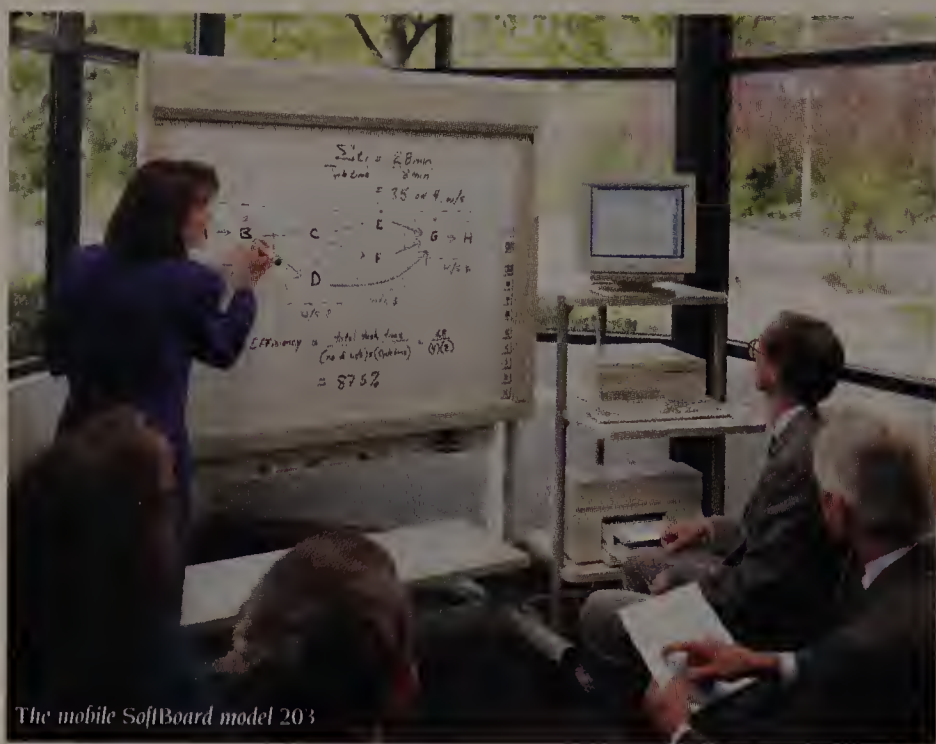
But Wait, There's More

IDC compared the development and marketing costs as a percent of revenue and found that it is less expensive to develop and market products for the Mac OS than for Windows. Mac development averaged 36.4 percent of revenue versus 55.8 percent for Windows. Add to this the fact that the large Windows market creates more competition for developers, some of it already well entrenched. That's a daunting prospect for any developer to face, especially new ones poised to enter the market. It's more difficult to gather and maintain critical mass in the larger marketplace from any single market segment.

A Conclusion Based on Evidence

Taking all these measurements into consideration, IDC concluded, "Yes, the Wintel market is bigger, but the Macintosh market is more manageable, more profitable, and forecasted to grow at least as fast or faster over the next five years."

Are you listening, Mac developers? **m**

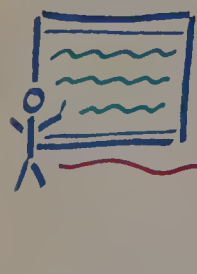


The mobile SoftBoard model 203

Imagine the meeting where you all have the same vision, the same objectives, and the same notes.

SoftBoard
MICROFIELD

SoftBoard only *looks and feels* like an ordinary whiteboard. Whatever you create on a SoftBoard® appears instantly on your Macintosh® or Windows®-based PC. Once it's there, you can save it, print it, cut and paste it, e-mail it, fax it, even network it to multiple sites. From personal to conference room sizes, wall or cubicle mount, table top, or mobile, there's a SoftBoard to fit your needs.



For our brochure and information on all our SoftBoard models call today. **1-800-334-4922 ext. 90**

MICROFIELD
Microfield Graphics, Inc.
9825 SW Sunshine Court
Beaverton, OR 97005
503-626-9393, Fax 503-641-9333
internet: sb_info@mfg.com

©1995 Microfield Graphics, Inc. All rights reserved. SoftBoard and Microfield Graphics are registered trademarks, and the SoftBoard and Microfield logos are trademarks of Microfield Graphics, Inc. All other trademarks and registered trademarks are the property of their respective owners. All specifications are subject to change without notice.



Circle 48 on reader service card

Fax On Demand 1-800-234-0455 ext. 667

UNLOCK YOUR BRAIN.

Plug this. Kai's Power Tools[®] 3.

Your answer to "no time to play."

You know the score: No one pays you to experiment. Finding time to create the next masterpiece is well-nigh impossible. Here's something that will fire up your synapses. It's the new Kai's Power Tools. It takes Adobe Photoshop to a completely new level. And your creativity will soar with it. What sets Kai's Power Tools apart, besides "neat, cool and alien" interfaces, is its ability to solve creative bottlenecks. On a Power Mac, you'll experience a rush seeing one-step filters take effect under KPT Lens f/x™ dazzling loupe. Optical nerves tingle with creative energy as KPT Spheroid Designer™ spins out thousands of electrifying spheres. Your mind melds watching KPT Interform™ weave pattern after pattern into an infinite spectrum of totally new liquid textures. It's enough to make you levitate. Just imagine what Leonardo Da Vinci would have done with this stuff. Suffice it to say there's no better way to maximize your investment in Adobe Photoshop. Isn't it high time you let Kai unlock *your* brain? ;)

Free your mind, call us today

1.800.472.9025

Mention Dept. KM01

MetaTools™

formerly HSC Software

805.566.6220 fax: 805.566.6367

Contact us in cyberspace: metasales@aol.com

<http://www.metatools.com>

Visit our Digital Imaging Theater at Macworld Expo, San Francisco, Jan. 9-12, Booth #2217 (South Hall).

© 1995 MetaTools, Inc. 6303 Carpinteria Ave., Carpinteria, CA 93013. Kai's Power Tools is a registered trademark and KPT Interform, KPT Lens f/x, KPT Spheroid Designer and MetaTools are trademarks of MetaTools, Inc. Macintosh is a registered trademark and Power Macintosh is a trademark of Apple Computer, Inc. Used under license. All other product names are trademarks of their respective owners.

PERFORMS UNDER
WINDOWS 95

Stereo Noise

Page Curl

Planar Tile

KPT Lens f/x

Twirl

Video Feedback

Vortex Tile

Fax On Demand 1-800-234-0455 ext. 662

Circle 5 on reader service card

NOW...DayStar 100 MHz PowerPC Upgrades Starting at \$999



Speed for the **creative** mind. Savings for the **business** mind.

You've got a wild blue zebra charging through your mind and your Mac can't keep up. Until now. DayStar's PowerPC upgrades provide all the speed and power you need to capture even your *fleetest* ideas. Experience the merging of mind and machine. Give your Mac the agility of 100 MHz PowerPC—only at half the cost of a new system—sure beats losing that zebra!

Big savings with new lower prices. That's smart business. We've just slashed prices on the 100 MHz Turbo 601. DayStar's state-of-the-art PowerPC 601 processor upgrades have never been more affordable.

And now the new PowerCard 601 boosts performance of your entry level Mac to 100 MHz Power Mac levels! Its PowerPC 601 processor accelerates your native applications up to six times faster than your 68040 software, transparently. **And it comes with System 7.5 software—Free!**



For more information call 800-895-2132

Press 4# to order FaxBack Catalog.

DayStar Digital, Inc., 5556 Atlanta Highway, Flowery Branch, GA 30542
(770) 967-2077 • Fax (770) 967-3018 • Web Page: <http://www.daystar.com>

©1995 DayStar Digital. Other trademarks are trademarks or registered trade marks of their respective holders.

Letters

Words on the Web

I HAVE TO SAY I WAS MOST PLEASED with the dual articles "Make the Right Connection" and "Pick the Best Browser" (October 1995). As a novice Net dog-paddler, I've become much the wiser because of your articles. Cameron Crotty and Joanna Pearlstein have deciphered the Net in humane language and invited even the most tender novice to venture forth where no dog-paddler has gone before. How reassuring to know that the Net's Web isn't so sticky after all.

*Don Prosser
via CompuServe*

HAVING JUST GONE THROUGH SEVERAL months' research in getting a Web browser running on my Performa 550, I appreciated "Make the Right Connection." I just wish I'd waited until after reading the article to install my system.

My first approach was to use the service offered by America Online since I was already a member and had successfully accessed the Web via Windows at work. The installation went smoothly on my Mac at home, but I could not get the Web browser to work. I chatted with the AOL technical consultants online and learned that 8MB of RAM is a must.

I considered buying more memory. But after reading your article, I found an independent provider, purchased MacTCP and *The Internet Starter Kit for Macintosh*, and it all works with 5MB.

*Sid Frost
via the Internet*

YOUR ARTICLE CONCERNING WEB browsers was accurate and insightful. However, I believe you overlooked MacWeb's most important feature—its size! MacWeb is small enough to fit onto a high-density disk, which makes it perfect for people whose Internet access comes from a public computer lab—like college students who do not have network ports in their dorms. The computers have

no hard drives, so using 2MB browsers like Netscape Navigator or Mosaic is impossible. In the future, when you're reviewing Internet tools, I invite you to consider size as well as speed, as a service to those Internauts whose utility belt is a little tighter than most.

*Justin Payne
via the Internet*

I WOULD LIKE TO EXTEND A HEARTY thank-you for your most timely and informative article "Make the Right Connection." I've been tromping through the comp.sys.mac.comm newsgroup for quite some time to get answers to questions that you made available. I had an idea of what to do, but simply lacked the direction. Your article provided that direction.

*Daniel R. Evans
via the Internet*

BECAUSE OF "MAKE THE RIGHT CONNECTION," I felt creative enough to post my own Web page on America Online. You said AOL allows a 2MB HTML home page, but this feature is only available for Windows. AOL would

not give me an exact answer on when it would be available for the Mac, only "it's currently in beta-testing."

*Michael Thibeau
via America Online*

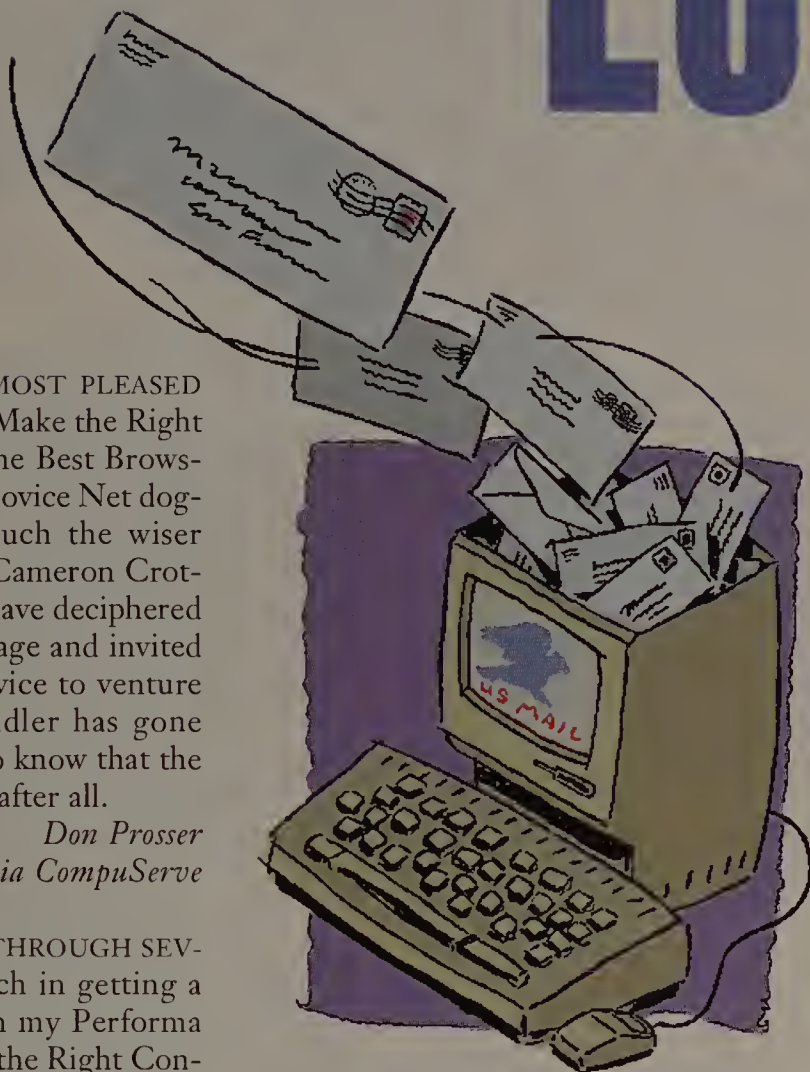
You're right; the Mac version is still in beta. AOL expects it up and running sometime this fall.—Ed.

Big Picture, Big Question

ACCORDING TO *MACWORLD*, "PETER M Stoller is a Los Angeles-based Macintosh consultant who delights in solving arcane Mac problems in America Online's Macintosh Operating Systems forum." This is an arcane Mac problem possibly of his own making. *Macworld* rated the Philips 17B as the best 17-inch monitor tested and gave it the Editors' Choice ("Big Picture, Big Value," October 1995). Since I am in the market for a 17-inch monitor, I thought, "Great! I'll get one." This was going to be one easy sale for Philips—except I couldn't find the 17B! I should have sensed trouble when I called Philips and they had never heard of it. I should have sensed even more trouble when half the monitor supply warehouses that I called hadn't heard of Philips! This was especially disturbing since it was Philips that suggested I call them. After talking to the Philips sales rep for half an hour, we found a monitor, released in January, that shared the same specs with the much touted, if vaporous, 17B. That monitor was called the Philips 1766DC. The 1766DC itself is pretty hard to find. If I want it, I have to order it sight unseen as no one seems to actually stock it in a showroom. If I later decide that I don't want it, I will have to pay a \$100 restocking fee to give it back. I feel a little unwilling to accept these terms unless I have some reason to believe the 1766DC is a good monitor.

*Ian Ollmann
via the Internet*

continues



CORRECTIONS

■ *The correct address for Apple's Networking and Communications software update library ("Top Ten Internet Addresses," Networks news, September 1995) is ftp://ftp.austin.apple.com/Apple.Support.Area/Apple.Software.Updates/US/Macintosh/Networking_and_Communications/.*

■ *An At Work news In Brief in the October 1995 issue ("Secure That Drive, Mister!") incorrectly implied that ASD's DiskGuard is the only driver-level security software available that is IDE compatible. usrEZ's ultraSecure has been IDE-compatible since April 1995.*

■ *The correct phone number for Fractal Design is 408/688-5300 (Reviews, October 1995).*

■ *The phone number for Markzware is 714/645-0881 ("Extending QuarkXPress," Graphics news, November 1995).*

■ *"Word 6.0 Survives Fiasco" (News, December 1995) incorrectly stated that new Mac versions of Microsoft's Office applications would be available by the end of 1995. Microsoft has not announced a release date for the next version of the Office product.*

Our apologies for any inconvenience. The problem stems from Philips' arcane naming conventions. The product name is the 17B, while the model number is the 1766DC. Philips tends to refer to it as the latter. The whole thing will become even more confused in January when Philips reverts to the Magnavox name for all its monitors.

According to our sources at Philips, the problem with availability for the 17B is that the company recently shifted manufacturing of this model from Taiwan to Mexico. That caused a hiccup in the monitor's availability. It has not been discontinued, and it is indeed the same monitor that we tested. According to Philips, though, it will probably be hard to find and may have to be specially ordered because of this manufacturing glitch.—Ed.

Move Quick on Quix

YOUR ARTICLE SCOOPING THE QUIX port to the IBM PReP (*News*, October 1995) was a pleasant surprise that I could personally relate to: for the past couple of months I've been using the Quix port of the Mac OS on my Next machine. I've been as amazed as you regarding the bomb-proof reliability of the company's porting technology. I skeptically read the rave reviews on the various Next forums at the beginning of the summer, but they were so over-

whelmingly positive I decided to order it from the American distributor, Open-Source. I've used it intensively in a professional environment since then and it's run flawlessly, and at Quadra 950 speeds.

Quix is for real, and I hope that Apple will follow the example of successful companies like IBM and Microsoft—and not Next—by more aggressively pursuing an open computing strategy. Judging by its products and good support, Quix comes across like a crack professional group of engineers, and Apple would do well to take Quix seriously.

Roger Brisson
via the Internet

The Sporting Life

UNTIL RECENTLY I WORKED EXCLUSIVELY with IBM computers, both in graduate school and in the research industry. However, my new employer uses Macintoshes. I have been pleased with the computer—so much, in fact, that I plan to purchase one. I searched for Mac sports software, but was unable to find anything. I was wondering why there isn't any or if there is, where it may be.

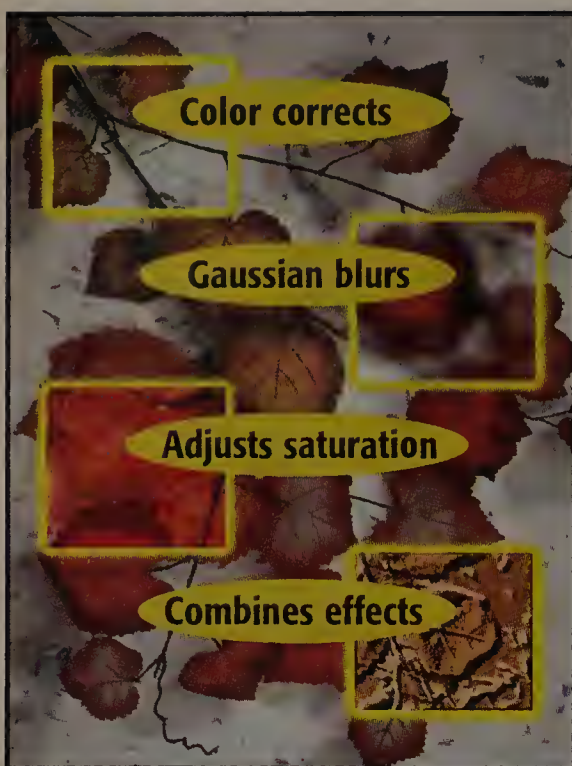
Kendall Szeliga
via the Internet

You might not see them sitting on the shelf at your local software store, but Mac-compatible sports games are out there. In fact, a couple are mentioned in this issue (see "Links Pro CD," in *Reviews*, and *Macworld Online news*). *Inside Mac Games* (800/339-0636; \$59 for ten CD-ROM-based issues) covers all sorts of Mac games. Of course, if you've got the time and the money, you can always pay a visit to the Macintosh Game Hall of Fame in Pittsfield, Massachusetts.—Ed.

Please, Just No Dylan Lyrics

I WAS INITIALLY SURPRISED TO READ the conflicting suggestions regarding E-mail signatures from Guy Kawasaki and David Pogue (*Wise Guy* and *The Desktop Critic*, October 1995). Guy suggests that signatures be used sparingly, and that "Some people . . . go overboard and create elaborate signatures with poetry, quotes, and ASCII art . . . so simplify your signature or don't use one at all." Meanwhile, David tells us "Netiquette example two: signing your E-mail with nothing but your name is the online equivalent of wearing a 'dork' sign on your back."

As I tried to reconcile these contradictory thoughts from these MacSages, it occurred to me that the larger lesson is *continues*



KPT Convolver: one interface, 10,000 filters.

Imagine being able to sharpen or blur an image, emboss in real time or adjust color balance with one mouse click. You could get this type of manipulation by manually entering numbers in Photoshop's custom-filter matrix. But you'd end up spending a lifetime doing what KPT*Convolver™ does in short order. Convolver puts the equivalent of 10,000 filters at your disposal with controls to apply them in any combination. Free yourself from Photoshop's preset filters and customize your own for perfect results each time. Convolver's real-time interface simply invites experimentation while allowing instant comparisons of a range of effects. Says an impressed user: "I've been using Convolver for three days and it allows amazingly precise control...from subtle to great." Don't let your fertile imagination become convoluted, get KPT Convolver today!

*That's Kai's Power Tools® to you!

MetaTools™

formerly HSC Software

To optimize your filter control, call

1.800.472.9025

Mention Dept. CM01



PERFORMS UNDER
WINDOWS'95

hscsales@aol.com • <http://www.metatools.com>

© 1995 MetaTools, Inc., 6303 Carpinteria Ave., Carpinteria, CA 93013. 805-566-8220. Fax: 805-566-6367. Kai's Power Tools is a registered trademark and KPT Convolver and MetaTools are trademarks of MetaTools, Inc. Macintosh is a registered trademark and Power Macintosh is a trademark of Apple Computer, Inc. Used under license. All other product names are trademarks of their respective owners.

Surf the Web.

**BEST
VALUE!**



The World Wide Web Kit, best buy on the Web—a \$130 value for only \$39*.

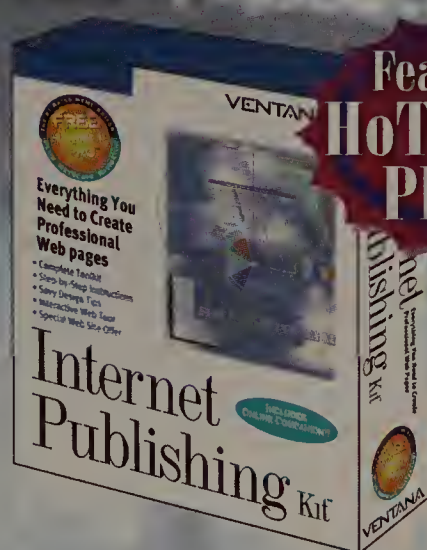
- Choose your favorite browser—**Netscape Navigator™** or **Ventana Mosaic™**.
- Money-saving access offer from **IBM Internet Connection service** (\$27.50 value!).
- Two bestselling **Ventana resource guides** and an **interactive CD-ROM**.

For Windows or Macintosh.

Now, Make Waves.

Compare with other complete professional packages costing thousands—all for only \$99*!

- Complete publishing toolkit, featuring *PC Magazine's* "Editor's Choice" **HoTMetal PRO™**; plus text, sound and graphics tools, templates and more!
- **Bestselling Ventana guide** to creating professional-looking Web pages.
- Two **bestselling Ventana books** on interactive CD-ROM.



For Windows or Macintosh.

**New for
Windows 95**



Practice Safe Surfing!

Take control with SurfWatch, The #1 Internet Guardian!

- **Blocks access** to thousands of unwanted sites and newsgroups.
- Works with most browsers and Internet services ... **SurfWatch lets you choose!**
- **Updates restricted site list automatically** with optional subscription service.
- Maintains **password-protected** control over access.

The best way to block X-rated Internet sites

Also available for Windows 3.1 and Macintosh.

Circle 128 on reader service card

VENTANA

Babbage's

Available now at these and other software and computer book outlets. For information, call toll free: 1-800-743-5369. Visit Ventana's World Wide Web site at <http://www.vmedia.com/>

**BEST
BUY**

**COMPUTER
USA**
THE COMPUTER SUPERSTORE

**COMPUTER
CITY**
ENTERTAINMENT

EGGHEAD SOFTWARE
North America's Software Experts

software etc

*Anticipated street price
MW1195

that E-mail and, for that matter, all online communications are best guided by the same rules as traditional communication. Know your recipient. If you're sending a business message, keep it to the point. If your message is social, then use as many poems as you'd like.

I can remember when my Macintosh was provided by an employer and David's advice would have caused me to lose a weekend designing a way-cool signature. Now that I own the company, I can't imagine spending the time on a fancy signature. I hope the fact that I'm busy doesn't really make me a dork.

Now, if I can just figure out the perfect E-mail message that would get Guy to invest in my company.

*Bret Keisling
via America Online*

Sanity Saver

YOU'VE DONE IT AGAIN. SAVED ME from the extremes of total frustration. This morning I was online, and just before signing off I decided to click on the America Online greeting screen. I clicked on an icon that said New, for *Computer-something* magazine. What a mistake. I was forced to wait over 20 minutes for the artwork to download. I'm not quick to anger as a rule, but by the time it finished, I was fit to be tied. I signed off and was too frazzled to go to work right away. I took a little break and picked up the October *Macworld*. It must have been destiny that it fell open to *The Desktop Critic* and the solution to the plague of artwork downloads on AOL. I've just installed and tested ArtValve, and boy, am I one happy camper. Can't wait to get my \$5 in the mail to Bill Karsh.

*Sheila Bailey
via America Online*

Wiseacre

AS A NBODUMDEKTA (NEVER BEEN Online, Don't Understand Modems, Don't Even Know The Acronyms), I was shocked to learn in Guy Kawasaki's column (*Wise Guy*, October 1995) that ALL CAPS is a definite faux pas when writing E-mail. What bozo came up with this convention? I *always* write in ALL CAPS. With the many hours I type on my computer, if I need to add extra emphasis to my writing, I merely use my mouse, a few strokes, different-size type, and boom, I'm in. WYSIWYG. I can't afford to contract carpal tunnel syndrome by constantly pushing the shift key up and down all the time. Why has the comput-

er world not embraced this yet? This went out with the typewriter in my book, Guy.

*Doug Ellis
Grandview, Missouri*

Why? Because we want to hang on to what meager eyesight we have left.—Ed.

Turkey Turnaround

VISUAL BUSINESS SYSTEMS' Professional Output Manager was recently featured in your "Bugs & Turkeys" as (I regret to say) a turkey, because of our serial-port dongle (*News*, October 1995). This is no longer true. We have an ADB (keyboard)-style dongle available for any of our users who would like the availability of their serial ports. All new versions now ship with the dongle, which has been tested on the latest Macintosh computers. Anyone wishing to switch to the new dongle should contact VBS at 508/263-9900; via the Internet at vbs@visbussys.com; or on the World Wide Web at <http://www.visbussys.com/vbs>.

*Christopher Osborn
Visual Business Systems
via the Internet*

Marketing Department? Huh?

DO YOU HAVE ANY IDEA WHAT Apple's E-mail address is?

*Nick Aschbrenner
via the Internet*

You can FTP to Apple's software update site, <ftp://ftp.info.apple.com>, or visit the Apple Web page at <http://www.apple.com>. I've also heard tell that it's possible to send E-mail to Apple via competition@applelink.apple.com, but it didn't work when I tried it.—Ed.

IFIND IT WONDERFULLY IRONIC THAT Microsoft chose the Rolling Stones' "Start Me Up" as its theme song for the release of Windows 95—only they left out the line, "You make a grown man cry."

*Mark Feldman
Santa Cruz, California*

Letters should be sent to *Letters*, *Macworld*, 501 Second St., San Francisco, CA 94107; via fax, 415/442-0766; or electronically to CompuServe (70370,702), MCI Mail (294-8078), America Online (*Macworld*), AppleLink (*Macworld1*), or via the Internet (letters@macworld.com). Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*. **m**

TECH SPECS

FOR DESIGNERS

• all the standard

illustration tools • precision to 0.5 micron • calligraphic pens • path-editing shortcuts include punch, mix & transparency • on-screen rotation & skewing in 0.01° increments • direct selection & editing within groups • automatic object re-blending • centralized ink controls apply colors, gradients,

ILLUSTRATORS

hatches, raster &

vector textures to strokes, fills & text • warp objects with 20 pre-defined templates • create standard color tints (10%, 20%, etc.) and custom coloring tints from any base color • multi-color linear, radial & directional gradients • transform 2D objects into 3D with light source control • calibrated CMYK colors • digital

ART DIRECTORS

"swatch"

book • gamut

warning indicator • line joins & end caps • zoom from 3% to 3200% in 0.01% increments • drag-and-drop between documents • use vector-based objects (including text) as arrowheads • interruptible screen redraws • autotrace scanned images • 38.5" by 38.5" pasteboard • unlimited undo & redo • font sizes from

IMAGE EDITORS

2 to 720 points in 0.1-point

increments • kerning & tracking • drop caps • text wraps • paragraph-level formatting • indents, margins & column guides • column-to-column text flows • left, right, center, decimal & comma tabs • letter & word spacing, hyphenation, last line, ragged width, widow & orphan controls • convert TrueType™ &

AND DTP-ERS.

Type-1 fonts to outlines •

automatic font mapping • 100,000-word spell checker • floating toolbox controls • TruMatch™ & PANTONE® Spot or Process colors • color separate any graphic element, including CMYK TIFFs • specify, separate & print spot, process or color tints • color calibration • UCR & GCR • object-level overprinting • moiré elimination • transition effects between presentation slides • floating layers palette • edit bitmap, gray-scale, duotone, indexed color, RGB & CMYK TIFF images • 24 alpha channels • feathered-edge selections • quick masks • magic wand • multiple rectangular & elliptical lassos • soft-edged brushes • pressure-sensitive tablet support • clone & rubber stamp • dodge & burn • selectively saturate & desaturate color • smudge, sharpen & blur • color balance, hue, saturation, brightness, contrast & gamma controls • image sharpening, softening, stylizing, distortion & noise filters • live previews • compatible with all Photoshop plug-in filters • TWAIN scanner support • device-independent CIE LAB color space • 2,000 typefaces (both TrueType™ & Type-1) & 20,000 color clipart images on CD-ROM • extensive I/O support including: Adobe™ Illustrator 5.5, Adobe Photoshop 3, EPSF, XPress DCS, TIFF (RGB & CMYK), Kodak Photo CD, MacDraw® Pro, PICT, TARGA, JPEG, IGES, CGM, DXF™, QuickTime™, HPGL, CorelDRAW™ 5, Designer 4, Windows Bitmap & Metafile, WPG, Plain Text, Microsoft™ Word, Rich Text (RTF) & MacWrite® Pro and more.



**FOR A DESIGNER OR ILLUSTRATOR
THE ONLY TOOL MORE IMPORTANT
THAN CANVAS™ 5
IS THE COFFEE MACHINE.**



THE BEST OF

ILLUSTRATOR™

FREEHAND™

QUARKXPRESS™

& PHOTOSHOP™



We who put words and images on paper for a living have lots of reasons to be profoundly thankful for the new Canvas 5.

Not only does Canvas 5 include all the features that have long made it the program of choice for technical illustrators, it now combines the major functions of Illustrator™, FreeHand™, QuarkXPress™ and Photoshop™. An awesome array of tools for illustration and page design. Typography and publishing. Photo design and image

editing. Wrapped around a radically simplified, intuitive interface.

It's quick. It's easy. It's complete.

Now, for the first time you can stay with a single program from concept to comp to illustration all the way through to color separations and pre-press.

Canvas 5 has the potential to turn our 16 hour work days into 12 hour days (while making our stuff look better). Excellent. Now maybe we can have a life.*

CANVAS

IT'S WHAT THEY'LL THINK OF NEXT.

**SAVE TIME.
SAVE A LITTLE
MONEY, TOO.**

Canvas 5 will cost \$599. But if you buy Canvas 3.5 right now, you can get acquainted with the program and get a free upgrade to Canvas 5 when it comes out later this fall. Want more info? Call **800-6-CANVAS EXTENSION 2.**

*Naaahh. © 1995 Deneba Software, 7400 S.W. 87th Avenue, Miami, FL 33173. Phone: (305) 596-5644. Fax: (305) 273-9069. Canvas is a trademark of Deneba Systems, Inc. Illustrator and Photoshop are trademarks of Adobe Systems, Inc. FreeHand is a trademark of Macromedia, Inc. QuarkXPress is a trademark of Quark, Inc. All other trademarks and registered trademarks are the property of their respective holders.

Fax On Demand 1-800-234-0455 ext. 676

Circle 57 on reader service card

Save yourself the embarrassment

"I said **yellow ochre**, and

I mean **yellow**

PRINT

EPSON STYLUS PRO XL INK JET PRINTER

720 dpi
x
720 dpi

\$2500



Hey, you know what color's supposed to look like. Whether it's primary, complementary, cobalt, magenta or moon glow verdigris. Which is why you'll probably appreciate the dialed-in color of an EPSON Stylus Pro XL printer. 720 x 720 dpi of eye-popping, Photo Quality color. Epson Color. If you'd like to find out more, give us a call at 1-800-241-5373 x3200 (no yelling), or see us on the Web at <http://www.epson.com>. And get yourself a printer with an eye for color almost as good as yours.

PANTONE® CALIBRATED™

ADOBE® POSTSCRIPT®

PHOTO QUALITY COLOR

assment of having to yell,

when I say yellow ochre,
ochre.”

PRINTS TO FULL 11x17 BLEED

19



YOU'VE GOT TO SEE IT IN **EPSON** COLOR.™

The Best in 3D Just Got *Faster!*

Specular Infini-D

The Standard for 3D Animation and Design

NOW SUPPORTS

QUICK DRAW 3D

QuickDraw 3D will revolutionize the way you do 3D on the Macintosh:

- No more wireframes • No more arcane 3D files • No more SGI envy
- Work with texture-mapped objects in real time • Cut and paste your 3D objects as easily as text.

We're talking total, real time interaction, the way 3D should be. Just think what QuickDraw 3D and Infini-D will do for your creativity.

Only Specular could make 3D this easy. No other program can touch Infini-D's combination of powerful features, ease-of-use and competitive price. Infini-D 3.0 already gives you spline-based modeling, animated spline morphing, editable motion paths and velocity graphs; think of QD3D as icing on the cake. You owe it to yourself and your Mac to take a look at Infini-D 3.0.

OUR GUARANTEE

If for any reason Infini-D 3.0 fails to meet your expectations, return it within 30 days for a full refund!

VISIT OUR WEB SITE

<http://www.specular.com>



FOR MORE INFO OR A
FREE CATALOG, CALL

1-800-433-7732

ComputerWare 1-800-326-0092 MacMail 1-800-222-2808 MacWarehouse 1-800-255-6227 MacZone 1-800-248-0800

Circle 41 on reader service card

MacBulletin

CHRP Standard Unveiled Apple, IBM, and Motorola have finalized the technical details for their jointly developed Common Hardware Reference Platform (CHRP), officially christened PowerPC Microprocessor Common Reference Platform.

As *Macworld* went to press, release of the specifications was set to take place on November 13 at the Comdex fall trade show. The three companies were also hoping to show an early CHRP prototype running the Mac OS and Windows NT. CHRP—which will be able to run all major operating systems except Windows 95—will gradually replace the current Power Mac hardware design, as well as IBM's PowerPC Reference Platform (PReP). The first computers based on the new design are expected from Apple and other companies in late 1996.

Industry sources suggest that the German computer maker Vobis, Taiwan-based Umax, and Japan's Canon—as well as two U.S. companies, PReP developer FirePower Systems and Mac-clone maker Power Computing—will announce plans at Comdex to build machines based on the new standard.

Apple's Ups and Downs After a year of much bad news, Apple is showing signs of a rebound. Despite an inability to keep up with the strong demand for new Macs, Apple earned a record \$3 billion in the fiscal quarter ending September 30, 1995—up 20 percent from the same quarter a year earlier. Apple sold about 1.3 million Macs between July 1 and September 30, 25 percent more than in the same period in 1994. Power Macs accounted for 70 percent of the sales.

Apple's share of worldwide personal computer sales jumped from a dismal 7.4 percent in the summer to 9 percent in the fall—Apple's usual percentage. The delays in shipping the new Macs appear to be one reason for the summer dip.

Fueled by strong sales of Macs to the education market, Apple now accounts for 63 percent of the computers used in U.S. public schools, up from 59 percent in the 1994–95 school year.

But the record earnings and higher sales do not mean record profits. Income for the quarter was \$72 million, versus \$190 million the year before. Apple now earns less per product—averaging 20.7 percent of the sales price this year, versus 27.2 percent a year ago.

Apple's efforts to reinvent its management also continued. In early November, senior vice president Dan Eilers, the respected number two executive and former Claris president, left the company after a reorganization eliminated his job. Apple has reorganized several times in the last year, consolidating the company's focus on key markets (such as North America, Europe, and Japan) and key user segments (such as graphics, education, and publishing).

Novell Drops OpenDoc, WordPerfect

Reversing a diversification effort, Novell has returned to its roots as a networking company. A month after selling its Unix business, Novell has ended its development of the Windows version of OpenDoc, an Apple-IBM technology for making small applications work together as if they were one big program. Apple continues to develop a Mac version of OpenDoc, which should be released in early 1996. IBM will take on the Windows version in addition to its OS/2 effort.

And Novell is putting the WordPerfect division up for sale, although no deal was announced at press time. In addition to the WordPerfect word processor for the Mac and Windows, the division also sells a Windows suite that includes a spreadsheet and database. Novell was reportedly porting that suite to the Mac to compete with Microsoft Office; its fate is unknown. **m**

News

IN THIS ISSUE

p. 32 Hot Games Preview p. 33 PowerBook Future p. 34 Will SuperMac Return to Sell Clones?

p. 37 Next Step for the PCI Bus p. 112 Web-Friendly Painter 4.0

p. 112 The Dry Film Advantage p. 120 The Simplified Lotus Notes p. 132 Waiting for ARA 3.0

3-D Comes to the Mac

With Apple's QuickDraw 3D technology available for any PCI Power Mac, it's only a matter of time before companies find new ways to take advantage of 3-D display for their programs, whether they be games, solids modeling, computer-aided design, or Web publishing. And as software takes advantage of 3-D, you can expect hardware companies to be close behind, offering QuickDraw 3D acceleration to bring the Mac closer to the kind of 3-D processing power heretofore reserved for mainframes and Unix Systems.

3-D's Web Possibilities

While the initial buzz on 3-D involved specialized uses—particularly modeling and CAD—it turns out that 3-D may now have a bigger reach.

The World Wide Web is no longer limited to static text and graphics. VRML (Virtual Reality Modeling Language) and Apple's QuickDraw 3D (408/996-1010, quickdraw.3D@applelink.apple.com) let Web pages contain 3-D objects that can be manipulated and 3-D scenes that can be navigated. The 3-D elements can also contain links to other 3-D objects and other Web sites.



HENK DAWSON

With these emerging technologies, online catalogs can include 3-D models of products that customers can view from any angle. A college can create a navigable 3-D campus in which clicking on the bookstore brings a student to a page showing the store's interior or listing its inventory. Theatergoers and sports

fans can see exactly what they'll view from the seats they're about to purchase. Scientists can jointly analyze 3-D representations of live experimental data. The possibilities are endless.

The VRML standard and Apple's QuickDraw 3D get around previous 3-D file-size roadblocks by rendering

scenes on the fly at a client's computer. Web servers transmit only geometry and texture information, not large rendered 3-D files. The client computer determines the placement, color, and shading of individual pixels. The result is drastically smaller files that can be efficiently distributed over 14.4-Kbps modems. For

example, an 1100-polygon 3-D model of a temple can be described in 42K with VRML. By contrast, a flat-shaded DXF version of the temple requires 1.5MB.

In some cases there are performance hits. A 66MHz Power Mac can manipulate objects with a few dozen polygons in nearly real time, but more complex models and scenes take longer to manipulate and navigate. A shaded 6-polygon cube takes 8 seconds to fully rotate through 36 steps, while the 1100-polygon VRML scene takes 22 seconds. Future plans for QuickDraw 3D and VRML include supporting animation, allowing multiple participants in the same scene, and improving performance.

Apple's QuickDraw 3D adds a few twists. If a Web page contains a model in QuickDraw 3D's 3DMF format, a user can drag that file out of a browser and drop it on another document or into the Clipboard. Apple plans to closely integrate QuickDraw 3D with its QuickTime VR technology, letting one scene contain both realistic and synthetic 3-D information.

Upgraded versions of Mac 3-D applications—including Strata StudioPro 1.75 (\$1495; 801/628-5218, info@strata3d.com), Virtus Walkthrough Pro 2.5 (\$495; 919/467-9700, info@virtus.com), and Specular International's Infini-D 3.1 (\$899; 413/253-3100, info@specular.com)—will all create VRML files. Integrating a VRML file into a page takes about the same effort as embedding a GIF file. Integrating a VRML file containing multiple URLs requires a bit more effort.

You can view VRML models with Whirlwind, a freeware Power Mac application by John Louch and Bill Enright that requires QuickDraw 3D. Whirlwind 1.0 can be installed as a *continues on page 35*

First Dual-Bus Mac Clone

NUBUS, PCI IN ONE SYSTEM



Macintosh clones aren't noted for innovation. Sure, Radius and Power Computing have each bettered Apple in small ways—better enclosures offer easy access to components and upgrades; deft packaging of peripherals creates an integrated solution for high-end DTP and video users. But licensing restrictions have made it hard for clone makers to deliver more than refined knockoffs.

Until now. For the first time, a Mac clone maker has made good on the promise to innovate. Power Computing recently introduced the PowerWave 604 series of dual-bus desktops. (Shortly afterward, DayStar Digital delivered a multiprocessing clone jointly developed with Apple, which is also a meaningful innovation.) The PowerWaves offer both NuBus and PCI slots—unlike anything Apple offers. If you have a huge investment in NuBus cards for video, graphics, and high-end storage, yet don't want to be left behind in the inevitable transition to the faster PCI standard, you can now heave a sigh of relief.



3-D cards, such as those from Matrox and Yarc, are starting to appear.

Power Computing's Innovation The basis of the new technology is an application-specific integrated circuit (ASIC) designed by Power Computing (800/671-6227, info@powercc.com) with Apple funding. Apple retains rights to use the new Stargate ASIC, but according to Power Computing CEO Stephen Kahng, Apple does not plan to produce dual-bus systems. This chip will also be available to third parties, so don't be surprised if others cash in on



Power Computing's new PowerWave 604 series runs as fast as 150MHz.

the NuBus legacy market. For example, Radius officials have long hinted the company would offer a dual-bus machine, probably using its own technology. (All the clone makers realize they must design their own ASICs to compete against Apple.)

The Stargate ASIC operates as a PCI-to-NuBus bridge and resides on a \$249 riser card; expansion cards fit into the riser card instead of directly on the motherboard. So if you just need PCI, you won't need this chip and can buy a cheaper version of the same machine with a PCI-only riser.

Power Computing claims the chip yields higher performance than traditional NuBus for some applications—particularly digital video—but no units were available for testing as *Macworld* went to press.

The New Lineup Dual-bus configurations will be roughly based on Apple's PCI Power Macs. Like Apple's PCI Macs, they will use *continues*

Dual-Purpose Drives

Want both a rewritable optical drive and a CD-ROM drive on your desk but don't have the space—or the cash? Using technology called phase change, three storage vendors recently announced new dual-function drives that combine both into one unit with a common tray-loading mechanism. The technology differs from what's found in a magneto-optical drive because there's no magnetic process involved—the laser that reads the CD-ROM can also write to the optical disc.

DynaTek's PCD650 (416/636-3000, info@raider.dynatek.ca) is shipping for \$995. The APS PDCD (816/483-1600, sales@apsTECH.com) and the Toray Phasewriter (415/341-0845) are scheduled to ship by the end of 1996; pricing was not available at press time.

Desktop LCD Projector

Proxima (619/457-9647) has introduced a \$6295 desktop active matrix LCD projector, the Desktop Projector 2400. It can display 2 million colors simultaneously at 640-by-480-pixel resolution.

1GB Drive Modules

MicroNet Technology (714/453-6000) will offer Iomega's 1GB and 540MB Jaz cartridge drives (higher-capacity cousins of the popular 100MB Zip drive) for its DataDock system. Each Jaz drive will cost \$600. The DataDock consists of stackable cases into which you can insert and remove SCSI devices such as hard drives, with no need to worry about cabling and SCSI IDs.

600-dpi Color Laser

Lexmark International (606/232-2000) now offers a 600-dpi CMYK color laser printer. The Optra C costs \$6400, plus \$299 for a LocalTalk interface card. Lexmark also unveiled four black-and-white laser printers that output at 1200 dpi: the R+, Rt+, Lx+, and Li+. Prices range from \$1749 to \$3549.



The \$249 riser card adds NuBus slots to the new Power Computing PowerWave 604 systems.

RICHARD RETHMEYER

bays. Expansion capability will be the same on desktop and tower machines—three PCI slots, or two PCI and two NuBus slots.

Power Computing says these units will be available in small numbers through November 1995, with production ramping up in December.

daughtercard-based CPUs to make for easier upgrading.

Power Computing's PowerWave 604 models will be based on a 150MHz, 132MHz, or 120MHz PowerPC 604 CPU. But the dual bus and enclosure design (in minitower and desktop models) should offer more flexibility and configurability for consumers. The 132MHz and 150MHz tower machines will feature three drive bays accessible from the front; the 120MHz desktop unit will feature two

Like the Power 100 and 120 models that the new machines will gradually replace, all the Power Computing offerings will ship with a keyboard, mouse, quad-speed CD-ROM drive, and a range of bundled software; these machines will support Mac and VGA video and offer 16MB of RAM and a 1GB hard drive in the base models. The PowerWave 604/150 will cost \$4499, the 604/132 will cost \$3699, and the 604/120 will cost \$3199.—CHARLES PILLER

More Add-on Cards for PowerBooks

FAX MODEM, ETHERNET, AND VIDEO CARDS

ActionTec (408/739-7000) and Global Village Communication (408/523-1000, sales@globalvillage.com) have both announced PC Cards (formerly called PCMCIA) for Apple's new PowerBook 5300 series and 190.

Both companies announced 14.4-Kbps and 28.8-Kbps fax modems and 10BaseT Ethernet/fax-modem combination cards. Global Village's combo card offers simultaneous use of the modem and Ethernet connections, while its fax modems offer two phone jacks. Both companies' products can support cellular phones with optional kits.

ActionTec's 28.8-Kbps fax modem costs \$299, while the combo card costs \$479; its 14.4-Kbps modem costs \$149 while the combo card costs \$339. An Ethernet-only card costs \$149. Global Village's 28.8-Kbps fax modem costs \$399, while its combo card costs \$599; its 14.4-Kbps fax modem costs \$209.

Viking Components (714/643-7255) offers the NetLink 288, a \$329, 28.8-Kbps fax modem that works with cellular telephones and provides autodial and autoanswer modes. And TDK Systems (916/478-8421) offers the \$529 DF2814APB Global Class fax modem.

In related news, Focus Enhancements (617/938-8088, focus@applelink.apple.com) has broadened its line of PDS cards for the new PowerBooks. In addition to the \$279 MV8-EN card, which has 8-bit video on 15-inch and 17-inch monitors plus a 10BaseT Ethernet connector, Focus offers the \$399

SPECIAL REPORT

Hot New Games

The glorious revolution continues, comrades! For years, the hardware fiddlers on the PC side have had better games, while the Macintosh proletariat, weakened by the anemic performance and burdened with massive system overhead, suffered under the grinding boot of sniveling Apple dictators, obsessing about the Mac's being called a toy computer.

But the will of the people cannot be restrained. The petty bureaucrats at Apple are being reeducated, and the PowerPC chip burns inside the Macintosh with the fury of a thousand suns. This special report previews an exciting, innovative new game, *Bad Mojo*, and goes deep into the heart of a top game developer, LucasArts, to bear firsthand witness to the mighty forces being unleashed therein. Long live the revolution!

Sneak Peek: Bad Mojo

Let's just say that you've had better days. One minute you're a man with a passport, a plane ticket, and a million dollars, and the next minute . . .

You're a cockroach.

Your sudden demotion to six-legged scavenger is your entry to the dark and twisted world of *Bad Mojo*, the latest game from Pulse Entertainment (310/264-5579, badmojo@Pulse-ent.com; formerly Drew

Pictures, creators of *Iron Helix*). *Bad Mojo* draws on the heritage of Brøderbund's *Myst* and Virgin's *7th Guest*, sending players on a quest of exploration and puzzle solving.

Macworld was able to play/test a beta version, and while *Myst* was otherworldly and *7th Guest* was eerie, *Bad Mojo* is deliciously *grimy*. Discarded cigarette butts, spilled liquids, and bits of gum stuck to the underside of tables, all photographed and rendered in loving detail and startling realism, set the stage for a bizarre tale of sorrow, loss, and redemption amidst the ordinary debris of human existence.

Your insectile alter ego is creepily believable, appearing on screen in a top-down view, responding with legs scuttling and antennae waving to simple directional keyboard

commands. Success depends on inferring clues from the bits and pieces (and occasionally people) that you crawl over and under. The game is also infused with otherworldly elements, as pictures come to life with memory flashbacks (movie sequences); silverfish, slugs, and fellow roaches pass on survival hints via a sort of vermin telepathy; and a mysterious guide appears in visions.

Multiple cinematic sequences tie *Bad Mojo* together, and a moody, atmospheric



In *Bad Mojo*, you may be a cockroach, but you can still recognize cheap cigars and the smell of despair.

MV16-EN, which has 16-bit color, and the \$299 MV16, which is an MV16-EN without the Ethernet connector.

—GALEN GRUMAN

PowerBook: What's Next?

DON'T EXPECT NEW INPUT DEVICES OR CD-ROM SOON

With Apple's new crop of PowerBooks all now shipping, you may ask, "What's next?" After all, PC notebook makers have been introducing innovations, including internal CD-ROM drives, removable LCD panels, and internal removable-media drives, none of which are in the latest Mac notebooks. A few companies in the PC market—IBM most notably, but also Toshiba and NEC Technologies—have become the prime movers in the notebook technological

exploration, taking on a role that most people associate with Apple.

But Apple has decided not to ride the leading edge when it comes to notebooks, say PowerBook product managers. As an example, take the CD-ROM drive, a device that Apple almost single-handedly made a standard component, not just on Macs but on all PCs, by including them in all models at almost no profit. It took about two years for a CD-ROM drive to become a must-have option for any PC. Now, several PC notebook makers are including CD-ROM drives in their notebooks, either in a side bay that normally houses a floppy drive or in a turntable-like apparatus under the keyboard, which flips up to give access to the CD-ROM drive.

But Apple product managers plan to hold off on adding CD-ROM drives until they can do so while retaining a weight



MATT WALTON

of about 6½ pounds, a decent battery life, and entry-level prices. Today's PC notebooks with CD-ROM drives are bigger, heavier, and pricier than regular notebooks, which is why PC vendors call them *bricks*. Bricks are typically used as miniature presentation systems, not personal computers.

As for copying two well-received IBM input innovations—a keyboard that expands to full size with a full set of keys when you open the lid, and the mini-joystick—Apple has no plan to do that, preferring to let users plug in a keyboard if they desire and to keep the trackpad as the standard Apple portable pointing device.

Later this year, you'll see PC notebooks sporting removable 5¼-inch drives, such as CD-ROM and SyQuest; removable LCD panels that work on overhead projectors; and a choice of input device. Apple says most of these come at the expense of battery life and weight, although it knows that it will have to consider such options in the future. Because there are so many PC notebook makers, a few can afford to invest in such options and successfully target a small part of the large PC notebook market. Apple, with a smaller base of users, can less easily afford to develop technology for subgroups, which is why you'll see only the innovative technologies that Apple thinks will appeal to the broad Mac market on its notebooks.

Given the small size of the Mac market (about 9 percent of the overall personal computer market) and the even smaller slice of notebook *continues*

soundtrack rounds out what's sure to be one of the most talked-about games of 1996.

Bad Mojo is expected to ship in January on CD-ROM for both the 680X0 and Power Macintosh; pricing had not been determined at press time.

LucasArts Preps Winter Lineup

Mac gamers can look forward to a joyous Thanksgiving, a merry Christmas, and a happy New Year, thanks to the crack team at LucasArts (415/472-3400); the maniacs in Marin County have plans to ship no fewer than five games between October and Super Bowl time.

X-Wing for the Macintosh should be on store shelves by the time you read this, and based on my hands-on play with a late prototype, the Mac version was worth the wait. Everything from the scenes between action segments to the game-control screens to the

flight engine has been updated with gorgeous high-resolution graphics, and the action is still fast, smooth, and exciting. The game will ship on CD-ROM for \$49.95, and will contain all the original X-Wing for PC CD-ROM missions, plus the missions from B-Wing and Imperial Pursuit.

In mid-January, *Star Wars* addicts will get another fix with Rebel Assault II (\$49.95), a hybrid game consisting of multiple episodes, each with a different style of play. Something odd is going on in a remote corner of the galaxy; it's up to you to find out what. Reprising your role of Rookie One, you'll fly a TIE fighter through narrow canyons, board an X-Wing, battle your way through the sewers of an Imperial station, and race for your life aboard a speederbike. The game is tied together with live-action cinematic sequences filmed with all the familiar *Star Wars* props.

For the more pensive gamer, The Dig is a puzzle-based adventure game scheduled to ship on CD-ROM in December 1995 for \$49.95. As Boston Low, space-shuttle pilot, you're on a mission to prevent an asteroid from crashing into Earth. Your investigations reveal that the asteroid is actually an alien spaceship, and then things *really* get weird. Suddenly shanghaied halfway across the galaxy, you and your team must rely on your wits to find a way home.

Meanwhile, LucasArts is bringing a pair of adventure-game faves from PC land over to the Macintosh. Day of the Tentacle and Sam and Max Hit the Road are two CD-ROM puzzle/adventure games, each with a twist. In the former, you guide a team of three friends as they attempt to save the world



Blasting Imperial storm troopers is all in a day's work for Rookie One. You also get lots of cockpit time in LucasArts' Rebel Assault II.

from the evil Purple Tentacle. In the latter game, Sam and Max are a wisecracking dog-and-rabbit detective team that rely on your help to solve a tricky mystery. Day of the Tentacle and Sam and Max should both be available by the time you read this. Prices were not available at press time.

So when the weather outside turns frightful this winter season, fear not. You'll be warm, toasty, and well entertained by the light of your Macintosh.

—CAMERON CROTTY

users (about 15 percent of Mac owners), there simply aren't enough buyers for the more esoteric technologies. Simply put, Apple can't recoup the development costs of technologies that it can't sell to almost all its PowerBook users, according to the Apple PowerBook team.—GALEN GRUMAN



Rick Schrameck, a former top Radius executive, plans a new line of clones that would resurrect the SuperMac name.

SuperMac May Return as Clone Seller

WILL FIRST SELL
RADIUS-MADE SYSTEMS



A former Radius executive is negotiating to license the SuperMac name from

Radius for a new line of Power Macintosh clones and ambitiously plans to exhibit early units at the Comdex trade show in mid-November 1995 and ship several thousand units by the end of this year. If this happens, it would be the fastest launch of a clone line, beating the schedules of Power Computing, Radius, and DayStar Digital by at least half a year. Asked how he can fulfill such an ambitious production schedule, company chief Rick Schrameck cites his previous experience as CEO of San Diego-based RDI, a manufacturer of Sun-compat-

ible portable computers.

In addition to licensing the SuperMac name, Radius would also sell its clone components to the new company, in return for a minority stake of between 15 and 19 percent and an agreement that the new company will not sell through the same outlets. Radius has signed a letter of intent with Schrameck, but at press time the deal was not complete.

Schrameck, executive vice president and general manager of Radius's systems division until August 25, tells *Macworld* that his new company, unofficially named Clone Corporation, would sell Taiwan-manufactured Mac clones through the direct and retail channels at prices 12 to 15 percent less than Apple charges. This is comparable to Power Computing's pricing. Schrameck says he also plans to make Macintosh notebooks that would resemble Intel-based notebooks rather than PowerBooks.

Intending to compete with Power Computing, the new small-business and home-oriented clones will bear the SuperMac name, which disappeared after Radius acquired

BUGS & TURKEYS



Ambrosia Software (716/325-1910; AmbrosiaSW@aol.com) encouraged users of its shareware screen saver Eclipse 2.20 to register by offering a free upgrade to version 3.0. But Ambrosia retroactively canceled the free offer, instead charging \$5 for the 3.0 upgrade.



DGX Systems (datagrxf@rtd.com) blanketed the Internet with an offer of an amazingly low-priced hard drive with a mechanism from an unfamiliar manufacturer. But in addition to offering only a 90-day warranty and not accepting credit cards, the company hopes to "create a better business-to-business communication vehicle for the Internet" by sending you long, unsolicited E-mails. Viewers must send E-mail to avoid further intrusions.

Macworld will send you a Bug Report T-shirt if you are the first to inform us of a serious, reproducible bug that we report in this column, or a Turkey Shoot T-Shirt if we shoot your turkey in this space. See *How to Contact Macworld*.

SuperMac Technology in August 1994. Other clone manufacturers have needed six to nine months to start shipping computers. (Schrameck's agreement with Radius forbids him from competing with Radius directly.)

A Radius spokesperson confirms that a deal is in the works but notes that it is contingent on Schrameck's getting funding for his company. Because Schrameck's company would initially use Radius's clone components, it is not required to contract with Apple as a licensee, although Schrameck says that he intends to

pursue a license on his own.

Schrameck says that in addition to Radius's interest in the company, he also expects start-up funding from the company that will act as his manufacturer. So far, he has received funding two individual investors outside the computer industry.

Even though he's targeting the low-margin home and small-business arena, Schrameck—admitting that it's an aggressive goal—wants to be profitable in 12 months. One idea to achieve this: after a 90-day warranty period, customers could pay for service and support, choosing from several tiers of options.

The new SuperMac machines will have three motherboard sizes; two will fit in the standard PC-industry Baby AT desktop, tower, and minitower enclosures, while the third will fit in an integrated desktop that resembles a Performa 5200.

Schrameck says the company will employ about 20 people on start-up and 50 by the end of the first year. His model for the company is a PC vendor like Gateway 2000, with all sales coming via phone, catalog, or large retailers. He would not use distributors or dealers, he said.

—HOWARD BALDWIN

THE AmCoEx INDEX OF USED MACINTOSH PRICES

Machine (RAM/Hard Drive)	Average Sale Price	Monthly Change
PowerBook 140 (4MB/40MB)	\$625	+\$25
PowerBook 165 (4MB/80MB)	\$950	\$0
PowerBook 180 (4MB/80MB)	\$1300	+\$50
PowerBook Duo 230 (4MB/80MB)	\$775	+\$25
Mac IIsi (3MB/40MB)	\$275	\$0
Mac IIci (4MB/80MB)	\$450	-\$75
Mac IIx (4MB/80MB)	\$450	\$0
Centris 650 (8MB/230MB)	\$975	-\$50
Quadra 800 (8MB/230MB)	\$1050	\$0
Quadra 900 (8MB/160MB)	\$1100	\$0
Power Mac 7100/66 (8MB/350MB)	\$1550	-\$200
Power Mac 8100AV (8MB/500MB)	\$2200	-\$400

Index provided by the American Computer Exchange of Atlanta (800/786-0717). It reflects sales during week of October 20. Configurations include keyboard and exclude monitor and display board for noncompact models.

"3-D Comes to the Mac" continued
Netscape helper application and can be used to view models from different camera positions and to jump to other Web sites. Template Graphics (619/457-5359, info@tgs.com), InterVista (415/648-2749, info@intervista.com), Virtus, and others plan full Mac VRML Web browsers. Links to Apple's QuickDraw 3D Web site and to the main VRML site can be found at <http://www.macworld.com/password/mwlinks/vrmlnews.html>.

Cards Lag behind 3-D Software QuickDraw 3D is here now, while QuickDraw 3D modeling and rendering programs, and 3-D-enabled Web browsers are promised by early 1996. But the hardware end is less active. While a Power Mac can handle QuickDraw 3D, many people doing serious 3-D work—whether for creation or view-

ing—will want a 3-D accelerator card. But these cards are slow in coming, and several companies are revisiting their early enthusiasm.

QuickDraw 3D accelerators fall into three groups: cards aimed at authoring users (3-D artists) that will cost under \$1200, cards aimed at gamers that will cost less than \$350, and cards aimed at renderers and modelers that will cost more than \$1000.

The authoring and gaming cards both offer real-time shading and texture mapping on 3-D objects. The line between the two types of cards is blurry. The main difference is in the amount of memory the boards have, and thus the number, size, and complexity of the texture maps they can hold.

Cards for 3-D Developers Expect three authoring cards by early 1996: one from Apple, two from other companies.

Apple's 3-D Advantage

MICROSOFT FLAILS WHILE THE MAC DELIVERS

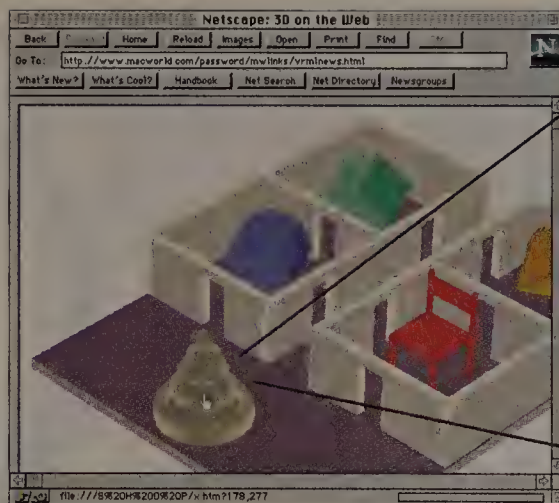
Apple hopes it can exploit the relative confusion of the Microsoft and Intel position on multimedia to provide a clear lead in the marketplace for low-cost 3-D graphics. "The Macintosh standard is much simpler and more coherent, and it's a very easy specification to implement," says Shawn Hopewood, Apple's QuickDraw 3D evangelist.

"Apple has imposed a standard on the community, and generally there's been little disagreement. Intel and Microsoft are still trying to agree on standards in the 3-D arena," says Trevor Marshall, chairman and CEO of Yarc Systems, a developer of accelerators for multimedia creators.

Vendors also hope that their technology will help the Macintosh steal some market share from Silicon Graphics (SGI), which currently dominates the market for 3-D graphical workstations. "We've had a number of companies that have talked to us about having a less expensive substitute for SGI machines. A high-end Mac with a good 3-D graphics accelerator could well be the answer," says Dave Evans, president and CEO of EA Research, which develops video-display cards.

"This is going to make 3-D much more widely available; before, you had to buy an SGI workstation," says Yarc's Marshall.

—MICHAEL PARSONS



For a hands-on look at 3-D on the Web, go to <http://www.macworld.com/password/mwlinks/vrmlnews.html>.

Between five and seven gaming cards that will also work on Windows are expected by late spring. This includes PCI graphics accelerators with 3-D features (from vendors such as ATI, Matrox, and Diamond). So who will offer 3-D cards? Several companies have plans.

- Apple (408/996-1010) plans a November 1995 release of the Apple QuickDraw 3D Accelerator Card. With an estimated street price of under \$400, Apple expects its card to appeal more to graphic artists and 3-D animators than to game players. The board provides 24-bit 3-D acceleration, supports texture maps, and can output alpha channels.

- Diamond Multimedia (408/325-7000, sales4u@diamondmm.com), which recently shipped a 3-D acceleration card for Windows 95-based PCs, is investigating QuickDraw 3D cards for the Mac market but hasn't decided whether to produce such cards.

- EA Research (510/867-0967, info@earesearch.com) offers three 3-D-gaming/video cards in the EAsycolor 24 line. One of the cards, the EAsycolor 1600/16, also supports Adobe Photoshop acceleration.

- Matrox Graphics (514/969-6300, graph.sales@matrox.com) offers the MGA Millennium PCI Graphics Accelerator, which combines 3-D and graphics acceleration; it's aimed at gamers and other viewers of 3-D graphics. A card with 4MB of RAM costs \$649 and can be upgraded to 8MB.

- Newer Technology (316/

685-4904) will release a card that works with the PDS slot of NuBus Power Macs. This card is aimed at gamers and other 3-D viewers.

- Radius (408/541-6100, support@radius.com) plans a 3-D card and has shown some prototypes, but the company has not decided what kind of product it wants to deliver or which target user (viewer or creator) it seeks.

- Yarc Systems (805/499-9444, sales@yarc.com) expects its Yarc Screamer card, aimed at 3-D developers, to be available by the time you read this, with a 2MB version priced at \$995. A version with extra memory and features will cost \$1495.

Many software developers say Apple's 3-D card is the best they've seen. In fact, its high quality seems to be giving other companies second thoughts about entering the Mac 3-D acceleration market.

Another factor that may have slowed down the development of 3-D cards was what several developers call poor coordination between Apple's PCI hardware engineers and the software engineers developing QuickDraw 3D; this held up delivery of the QuickDraw 3D software.

"The coordination between QuickDraw 3D software and the PCI hardware was less than optimal. It's tough to ship a card when you don't have any software to test it with," says Trevor Marshall, chairman and CEO of Yarc Systems.—JIM FEELEY



ONE

[Thermal]

FOR THE MONEY.

TWO



[Dye sublimation]

FOR THE SHOW.



No other color printer does more for your image—and your bottom line—than the dual technology Professional ColorPoint 2 PSF from Seiko Instruments.

It's actually two printers in one: use the economical thermal wax transfer mode for rough comps and drafts, then switch to dye sublimation for stunning, photorealistic final prints that come amazingly close to your match print.

When you also consider that it offers full-bleed printing in both letter and tabloid, Adobe PostScript Level 2, and an internal hard disk with all the memory you'll need to really show off, there's no other printer worth considering. For more information, call us at 1-800-888-0817. Get serious. Get Seiko.

SII 
Seiko Instruments

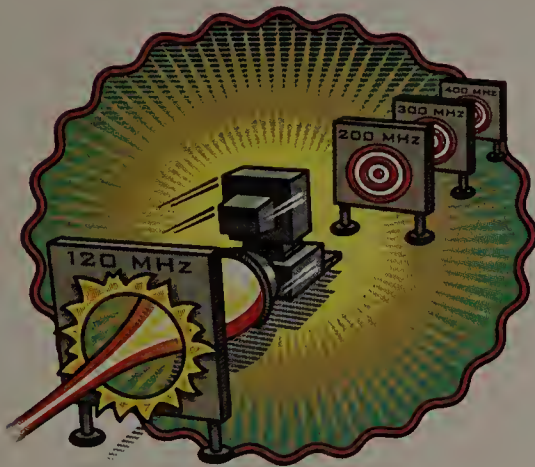
Power Mac News

The PowerPC's Fast Future

IMAGINING THE CPU IN THE YEAR 2005

We've all come to expect rapid, continuous improvement in computer performance. For the past 20 years, CPU performance has doubled about every 18 months. The PowerPC will stay close to this pace for the next 10 years—a nearly 100-fold improvement in that time—according to Will Swearingen, product-marketing manager at Motorola's RISC Microprocessor Division, and Mark McDermott, director of VLSI engineering at the same division. Motorola and IBM's Microelectronics Division codesign and manufacture the PowerPC CPU family.

But not everyone thinks the industry can keep up that pace. Dave Ditzel, who coauthored the now-famous original engineering proposal for RISC processors (the architectural approach upon which the PowerPC is based), thinks that performance doubling will stretch out to 22 to 24 months. That's because most of the easy gains in CPU fabrication have already been made. "We have now used all the techniques of the mainframes on a chip. Basic silicon technology will progress at the same rate for the next 10 years, but we won't get a straight extrapolation in performance. Improvements by a factor of 16 to 20 [rather than a factor of 100 as Motorola hopes] are very doable over the next 10 years," Ditzel explains.



David Patterson, who wrote the RISC paper with Ditzel and now teaches at the University of California at Berkeley, takes a middle ground, saying that many people think the 18-month doubling rate can be sustained for two more cycles before slowing down. "I think what may happen is some new inventions to keep up the rate—to the end of the century at least."

The chart "How Fast Will Computers Be in Ten Years?" shows the considerable difference in performance for the CPU of the year 2005, depending on whether the doubling period stays at 18 months or slows to 22 to 24 months. These estimates are all based on computers with a single main CPU. The most obvious way to gain performance is to install more than one CPU. Although multiple CPUs have found a place in scientific computing, "so far there's no need to use more than one processor [for general business tasks]," Patterson says. "But if we can solve the problem of programming for multiple processors, then we can simply add processors for more performance."

In 5 years, according to Patterson, computers will have 16 times the memory capacity they do now. "One big challenge is the time for

the processor to access the memory. [One solution is that] the processor might be on the same chip as memory. Every time you buy memory, you get a processor also." Intel is trying out a variant of this strategy with its new Pentium Pro (better known by its code name, P6), which integrates a cache and a CPU on one card.

But in 10 years, a RISC chip such as the PowerPC "may run out of gas," says Motorola's McDermott. Perhaps multiple CPUs that can change tasks on the fly from raw computing to digital-signal processing to image compression will be the core of the Macintosh in 2005.

Whatever the specific technology, future computers will be more powerful. What will we use that power for? Frank Casanova, director of exploratory products in Apple's Advanced Technology Group, envisions many interconnected computers on our desks, on belts or wrists, in our cars. These computers would sense the presence of individuals, offering up appropriate information to those with authorization and shutting down in the presence of intruders. An intelligent assistant in a computer would have to process huge amounts of infor-

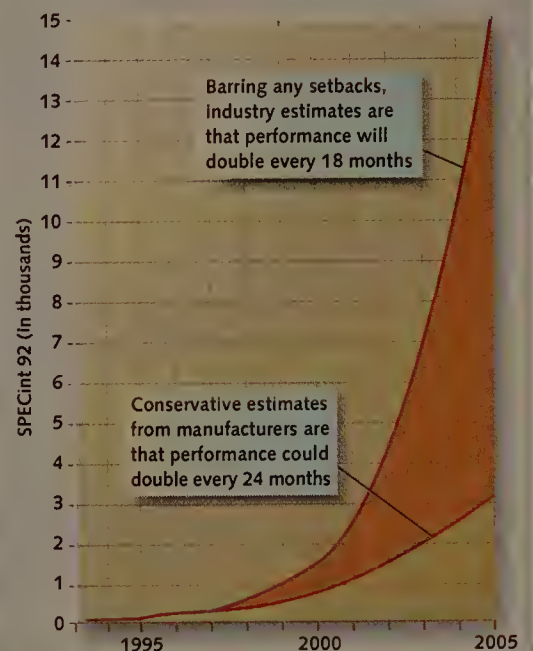
mation to anticipate our needs rather than simply respond to specific requests.

Software improvements are much harder to predict than hardware improvements. "Software is more driven by a business model than a technological model. Why do something better when people don't know they need it?" observes Motorola's Swearingen.

This trend is nothing new—predictable hardware improvements and unpredictable software advances have been a signature of the personal computer industry. And these experts expect that software will continue to lag behind hardware for the next decade.—CARY LU

How Fast Will Computers Be in Ten Years?

This chart shows the estimated increase of CPU performance over the next ten years, in SPECint 92 performance, which measures raw CPU performance for integer calculations—the most common on personal computers. Estimates assume that RAM and cache grow in capacity and speed as they have historically.



SPECint 92 does not include factors that affect a computer's overall performance (disk access, video display, bus performance). The SPECint 92 results here for existing CPUs were run on systems with 64MB of RAM and 1MB of external cache.



HELLO WORLD.

**PSIWEBSM PROVIDES SMALL BUSINESSES WITH
THE MOST COMPREHENSIVE, AFFORDABLE WORLD WIDE WEB
SOLUTION AVAILABLE ANYWHERE.**

You know your organization needs global exposure. But you don't want to pay hefty fees for each person who visits your site. It's too hard to budget for...and too costly.

As a PSIWEB subscriber, your monthly rate is based solely on the specific content of your Web site, so your costs are easy to budget and completely up to you to control. And you can change the content as often as you like - FREE.

We'll even help you promote the site for free, by posting your home page in high-traffic Web locations on a rotating basis.

What's more, PSIWEB's exclusive WebConnectSM program will enable you to provide dial-up Internet access to your important customers and hot prospects. A service they're sure to appreciate. Even better, PSINET's[®] InterRampSM software will automatically display your home page first, each time they log on, so you'll always be the first thing they see. And since your site will be running on our server, you'll never have to worry about security.

Best of all, the PSIWEB service takes full advantage of PSINET - the largest and best public Internet network in the world. So give your organization the global exposure you know you need today. Otherwise, the world could pass you by. To find out more, call

1-800-419-4932 Dept. 618



PSINET THE INTERNET STARTS HERE

Internet E-Mail: psinet-info@psi.com • World Wide Web: <http://www.inter.net/> • PSINET faxserver: 1-800-329-7741

Macworld Online

by Macworld Online Staff

Game On

Some days, you just need to feel the throat of your enemy beneath your heel—to pit your frontal lobe against another human in a battle of wits and strategy. But without a flesh-and-blood adversary, world domination just doesn't taste as sweet. It's not much fun to gloat when you beat your Power Mac 6100 in a game of Risk.

Armchair Alexanders need not waste away in solitude, because online gaming with human opponents is ready and waiting. To access these resources, you need at least a 14.4-Kbps modem, an Internet connection, and a healthy attitude about competition. After all, there's no board to flip over when you lose.

Pickup Gaming on the Internet

When the Online crew gets a craving for a late-night dose of intergalactic conquest, we fire up Delta Tao's Spaceward Ho, but when there's no one else around, a computer opponent is a poor substitute. At these times, we turn to Outland, the Internet Mac gaming service. Log on to Outland's game server with a direct Internet connection and you can almost always find a human adversary. Pricing is \$9.95 per month for unlimited gaming access to chess, Reversi, go, hearts, and backgammon, as well as Spaceward Ho. Find out more at <http://www.outland.com> or send E-mail to info@outland.com.

When Deep Thought beat Kasparov, chess pundits

wailed and gnashed their teeth, claiming that computers would be the ruin of the game of kings. Yeah, right. Tell it to the regulars at the GNU free Internet Chess Server (ICS). Use your Telnet client to visit them at <telnet://ics.onenet.net:5000/>.

You can read the latest chess news, make friends with a grand master in Grand Rapids, or let the server test you and assign you a chess rating. If you aren't comfortable with chess notation, there's a graphic Mac interface at the ICS FTP site, <ftp://chess.onenet.net/pub/chess/Macintosh/>.

Shoot 'Em Up There's a well-known corollary among computer geeks in college: Your GPA will be inversely

proportional to your score in Bolo. This real-time graphic network game places you inside a tank, and your job is to travel the map, deploying worker drones to construct bridges and buildings to protect your bases. Other network players lay mines, trash your buildings, and otherwise wreak havoc. Get the latest software at <ftp://noproblem.uchicago.edu/pub/Bolo/>. To find out who's playing right now, visit Bolo Web, a Web site that offers a continually updated list of Bolo games in progress all over the Net, at <http://sai.Stanford.EDU/BoloWeb.html>.

Sports In your wildest dreams, you want to be Al Davis. Trading spoiled million-dollar players, making

deals, and ruling your professional sports team with an iron fist. Here's your chance. Small World Software's strategy sports games cast you as a virtual manager; you'll draft a roster of real-world players before each season, trade them for Small World dollars, and take your cut based on their performance. Compete against other sports fans, nationally and by division, as you watch your team's fortunes rise (and fall) on Small World's scoreboards.

This Web-based version of traditional Rotisserie sports games offers stats on each player, as well as charts and graphs comparing their performances, all for \$40 per team, per season. Small World is currently running a basketball and hockey season (<http://www.smallworld.com>). Golf, baseball, and football will all debut in the new year.

Gaming resources on the Net are legion. Chances are if you can play it, there's a Web page for it. For a great comprehensive listing of games resources on the Net, start at the World Wide Web Virtual Library site: <http://www.cis.ufl.edu/~thoth/library/recreation.html>. Starting in December, visit our new service dedicated to the best in Mac games: the Macworld Online GameLine. You'll find it in the TechnoCultural Cafe (<http://www.macworld.com>). **m**

LIVE-EVENTS CALENDAR

Plug into Macworld Live for weekly real-time events that feature some of the brightest stars in the Macintosh universe. In addition to our troubleshooting clinics, we bring editors and writers, artists and visionaries directly to your desktop. You'll find us on America Online in the Macworld Live Rotunda (keyword: Macworld) every Thursday night at 6 p.m. Pacific/9 p.m. Eastern.

Game Hall of Fame December 7

Mac gamers with blistered thumbs and spinning eyeballs will not want to miss the annual Macworld Macintosh Game Hall of Fame awards. Join Macworld contributing editor Steven Levy for an evening of game talk and a look at our favorite digital diversions. No need to RSVP and evening wear is not required.

Happy Mutants December 14

Meet the editors behind *The Happy Mutant Handbook* and *being being* magazine and learn how to build your own perpetual novelty engine. We'll explore the precepts of reality hacking, learn about better

living through silicon, and unwrap the brain candy that you get when you make your own media. An evening of supreme weirdness.

Costa's Clinic December 21

Are you a new Macintosh owner or a power user in training? Join Macworld Online's technology guru Steve Costa for this virtual Mac clinic. Steve will help you tune up your computer, outfit it with great shareware, and give you the scoop on all things Macintosh.

Ask Cary Lu December 28

Macworld contributing editor Cary Lu covers more than just portable computing for *Macworld*, bringing his considerable knowledge to bear on a variety of Mac topics. At this monthly event, he'll help answer your toughest computing questions.

This is the last live events calendar that will appear in the print version *Macworld*. To get a monthly calendar of our events send E-mail to mwlive@macworld.com and put *subscribe* in the subject line of your message.

REACHING MACWORLD ONLINE

America Online
Keyword is Macworld
World Wide Web
URL is
<http://www.macworld.com>

The difference between backing up and restoring.

Nobody backs up just for fun. You do it for the day your hard drive goes soft and it's time to restore. That's when you see the difference between Retrospect® and the rest. Only Retrospect easily restores all your data to its former glory.



Retrospect saves all your preferences, everything. So you don't have to spend countless hours restoring whatever masterpiece is on your hard drive.



5. The world's foremost restoration artists. Don't leave yourself wide open to disaster. Buy the software with the awards, the raves, and

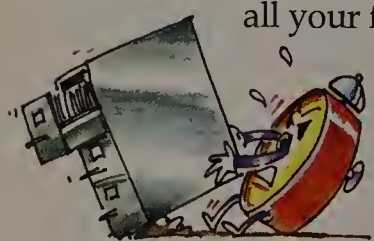
1. Beware of dragging files. If you've been "backing up" by dragging files, you'll have an unpleasant discovery when it's time to restore. Even if you've kept up to date with all your files (sure,

flood, or theft, and those tools won't recover anything.

3. Other backup software leaves you exposed. You're forced to individually restore each incremental backup. The dentist's more fun than that. Only Retrospect has SnapShot™ technology that tracks the most recent state of your hard drive. So complete restoration is accomplished in just one step, in only minutes.

4. Don't play the odds, you'll lose. Half of you are going to lose a file, a document, or everything this year. Think about it: one single file could be worth more than Retrospect's entire price tag.

support for almost every SCSI tape drive ever made. And every Retrospect benefit is multiplied many times over with Retrospect Remote®—our backup answer for network users. Call us at 800-95-BACKUP for our *Top Ten Backup Tips*. Do it before it's too late.



Think about this the next time you're "backing up" by dragging: Retrospect can scan 200 files a second to see which files have changed. Can you?

sure), what you'll still be missing is every preference, configuration, and font – all the stuff that reflects the way you work.

2. Recovery tools don't recover everything. At best, it's a partial recovery. At worst, you have a fire,

EasyScript

Answer a few questions and Retrospect's new EasyScript™ creates a customized backup strategy that includes backup frequency, scheduling, and media rotation.



dantz To go forward, you must backup.®

©1995 Retrospect and Retrospect Remote are registered trademarks of Dantz Development Corporation. All other trademarks are property of their respective holders. Dantz Development Corporation, 4 Orinda Way, Building C, Orinda, CA 94563. Phone: 510.253.3000. Fax: 510.253.9099. Internet: info@dantz.com.

Circle 26 on reader service card

New Products

THE LATEST MACINTOSH RELEASES

by Jim Feeley
and Joanna Pearlstein

THIS SECTION COVERS MACINTOSH PRODUCTS FORMALLY ANNOUNCED BUT NOT YET EVALUATED BY MACWORLD. UNLESS OTHERWISE STATED, ALL PRICES ARE SUGGESTED RETAIL AND THE MINIMUM REQUIREMENTS FOR OPERATION ARE A MAC PLUS WITH 1MB OF RAM, RUNNING SYSTEM 6. A  SIGNIFIES THAT A NATIVE POWER MAC VERSION OF THE PRODUCT IS AVAILABLE. ALL INFORMATION AND PERFORMANCE CLAIMS ARE SUPPLIED BY THE PRODUCT VENDOR AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY MACWORLD. PLEASE CALL VENDORS FOR INFORMATION ON AVAILABILITY.

HARDWARE

3Com Impact

Claimed to be the first external ISDN modem to support Multilink PPP, a standard that lets users connect at 128 Kbps, this modem incorporates dynamic bandwidth allocation for simultaneous use of two ISDN channels for data, data and voice, or data and fax. An optional 14.4-Kbps fax modem allows compatibility with services not yet using ISDN but still requires only one communications port. \$649. With built-in V.32bis modem \$749. 3Com, 408/764-5000, info@3com.com.



Alps GlidePoint Keyboard

Alps GlidePoint Keyboard

For those of us who are tired of leaving the keyboard to reach for a mouse, Alps integrates its 1½-by-2-inch touchpad into a 106-key keyboard. The GlidePoint includes a contoured wrist rest and an easy-to-find backspace key next to the space bar. The pad features 400-dpi resolution and three programmable buttons. \$159.95. Alps Electric, 408/432-6000.

CA2111

Designed for publishing and CAD professionals, this new 21-inch color monitor offers a maximum resolution of 1600 by 1280 pixels, a 0.28mm dot pitch, and a 100Hz maximum refresh rate. You can adjust horizontal and vertical settings, pincushioning, geometry, rotation, and convergence. The Energy Star-compliant monitor features an antireflection, antistatic coating. \$1795. Smile International, 714/546-0336.

Ether CS TwP and TnT Cards

Sonic's Ether CS cards bring Ethernet capabilities to Performa and Power Macintosh models (including the 575, 5200, and 6200) equipped with a communications slot. The Ether CS TwP Card includes a 10BaseT port, while the Ether CS TnT Card offers thin Ethernet. \$99 each. Sonic Systems, 408/736-1900, sales@sonicsys.com.

EtherPower 10/100

The EtherPower 10/100 dual-mode card supports both standard and Fast Ethernet protocols. The card ships with drivers for Macintosh, Novell NetWare, Unix, and Windows. \$259. Standard Microsystems, 516/435-6000.

Interactor Cushion

In a spine-tingling development for multimedia and game fans, this chair cushion lets you feel the cannon blasts in Doom and hear the roar of a jet engine in Falcon. The cushion's electromagnetic actuator technology converts bass sound waves into body-pulsing vibrations synchronized with your multimedia or game sound track. The 10-watt power amp lets you customize the cushion's performance. \$99. Aura Systems, 310/643-5300.

Mirage D-16L

Two lenses can be better than one. With hardware resolutions of 400 by 800 dpi and 800 by 1600 dpi, this dual-lens large-format 30-bit scanner is ideal for scanning large artwork, newspapers, magazines, or even medical X-ray film. The 2MB buffer allows a 12-by-17-inch image to be scanned at 400 dpi in under 70 seconds. The large scanning area can hold 32, 35mm slides or 8, 4-by-6-inch pictures at once. The scanner has a better than 3.2 maximum density, incorporates Kodak's Color Management Software, and can scan direct to CMYK. \$6995. Umax Technologies, 510/651-8883.



Mirage D-16L

MMV102

Ready to give up your commute but need full access to your office's communications systems? This two-channel voice, data, and fax concentrator gives home and remote office workers access to WATS lines, PBX services, voice mail, and LANs over a single, simultaneous voice and data line. The connection may be analog, ISDN, switched 56, fractional T1, or most other services up to 128 Kbps. The MMV102 connects to phones, faxes, and PBXs via standard FXS/FXO interfaces. Computers and LANs connect through RS-232 interfaces. Options include an internal 28.8-Kbps modem and 56-Kbps DDS DSU. \$1499. Multi-Tech Systems, 612/785-3500, mtssales@multitech.com.



MMV102

One For All RoadRunner

Running out of space for all your removable storage devices? The single mechanism in the RoadRunner functions as both a 650MB rewritable optical drive and a quad-speed CD-ROM drive. \$995. Analog & Digital Peripherals, 513/339-2241.

Performa 6300

With a faster CPU (the 100MHz PowerPC 603e), this Mac is an updated version of the Performa 6200 released in mid-July 1995. The 6300 has the same design as the Performa 630 and 6200 (both of which have been discontinued), but offers more in terms of expansion: a 1.2GB hard drive; quad-speed CD-ROM drive; 28.8-Kbps fax modem; expansion slots for video-in, TV tuner, and communications device; and 1MB of VRAM (which supports 8-bit color at 800-by-600-pixel resolution and 16-bit color at

640-by-480-pixel resolution). New to the 6300 is a second serial port and an MPEG video-playback card (which had been a \$299 option in the 6200). Apple estimates the Performa 6300 will cost \$2800, about the same as a similarly configured 6200. A motherboard upgrade for the Performa 630, 5200, and 6200 series costs \$599. Apple, 408/996-1010.

PMCS-1000

This external 3½-inch minicartridge tape drive stuffs 1GB of data (up to 2GB with compression) onto its QIC-Wide cartridge at a rate of 36MB per minute. The drive's read-after-write capability allows single-pass backup, verify, restore, and compare operations. \$1295. Parallel Storage Solutions, 914/347-7044.

Power 120

Power Computing has shipped a 120MHz version of its Power tower and desktop systems. The Power 120 desktop system sells for \$1999 and the Power 120 tower for \$2099. Except for the CPU speed, the Power 120 systems are identical to the company's other Mac clones. Power Computing, 512/258-1350, info@powercc.com.

SAM-Joystick

Some people with disabilities can't use a mouse or trackball. Eliminating this barrier to Macintosh use, the SAM-Joystick (Switch-Adapted Mouse-Joystick) provides full control of the Finder's cursor through an orthopedic joystick. The joystick moves the cursor at a rate proportional to the degree the stick is moved. An external switch acts as a mouse button (you can use any part of your body to perform mouse-clicking) and facilitates dragging. \$120. RJ Cooper & Associates, 714/240-4853, rjcoop@aol.com.

Spressa 9211

Targeting departmental managers who want to save corporate data on CD-ROM rather than on green-bar paper, Sony Electronics has announced the *continues*



Spressa 9211

New Products

Spessa 9211 recordable CD-ROM drive. The drive comes with Corel's CD Creator CD-R mastering software. The Spessa 9211 features a 1MB data buffer to reduce data-buffer underruns. If an underrun does occur, the Spessa also includes a CD-recovery utility so you can restart the recording process on the unused portion of the CD. Sony estimates that street prices will be around \$2000 for the external version and \$1700 for the internal version. Sony Electronics, 408/432-0190.

Typhoon 40

Spending too much time at the photocopier putting together reports and proposals? Dataproducts has announced the Typhoon 40, a 40-ppm laser printer that does two-sided printing. It has a maximum paper capacity of 2500 sheets; an optional 500-sheet hopper and 1500-sheet output stacker boost total capacity to 3000 sheets input and 2500 sheets output. The Typhoon 40 uses the PhoenixPage PostScript clone, not the real thing. The current version outputs at 300 dpi; 600 dpi is planned for late 1996. \$30,995. Dataproducts, 818/887-8000.

ViewSonic 17EA

By building stereo speakers into its monitor's case, ViewSonic aims to save you some desk space and some money. The 17-inch screen provides a maximum screen resolution of 1280 by 1024 pixels with a maximum 85Hz refresh rate at 1024-by-768-pixel resolution. Other features include ViewMatch color control, antistatic antiglare screen coating,

and on-screen control of 20 monitor settings. \$795. ViewSonic, 909/869-7976.

Vivace Vocal Accompanist

If you're tired of karaoke machines forcing you to sing in a rigid meter that robs you of all expression, too bad. But for the serious voice student, the Vivace Vocal Accompanist acts like a very good human accompanist that follows you when you speed up, slow down, or hold a note. Coda produces a large selection of standard vocal repertoire for the system. Our reviewer liked the original Vivace (see *Reviews*, January 1995). \$2295. Coda Music Technology, 612/937-9611.

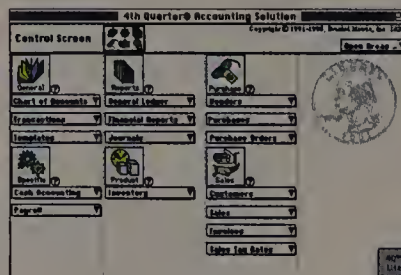
SOFTWARE

Acrobat 2.1

Adobe has revised its portable-document creation tools for both Macintosh and Windows. For Mac owners, the most significant change is the addition of the \$500 Catalog tool, which was previously available only in a Windows version. Catalog creates indexes of documents on a network server so anyone on a Macintosh or in Windows can find documents by keyword more quickly. The \$195 revised Acrobat Exchange, version 2.1, now supports embedded World Wide Web links; native Power Mac code; the ability to include QuickTime movies; and OLE 2.0. (The \$1595 cross-platform Acrobat for Workgroups includes Exchange, Catalogs, and other Acrobat modules.) Adobe Systems, 415/961-4400.

3DPC for Macintosh

Jazz up your idle monitor with a three-dimensional screen saver. 3DPC combines photo-realistic images with three-dimensional animations to create 3-D screen savers. The product features 3-D, ray-traced animations of a dragon, a molten metallic worm, and flying pigs—all reminiscent of Magritte or Escher. Animation effects include texture mapping, montages, morphing, and model renderings. The screen saver also has a password-protection feature, online help, and an animation previewer. \$20. Forté, 619/431-6495, 3dpc.support@forteinc.com.



4th Quarter Accounting Solution

4th Quarter Accounting Solution

This 4th Dimension-based, multiuser, high-end accounting system can be reconfigured for your company's needs. Designed for businesses whose sales are between \$5 million and \$50 million per year, 4th Quarter has built-in development tools and reusable code libraries. Features include invoices, purchase orders, inventory, financial reporting, and payroll functions; the product's extendable accounting data structures

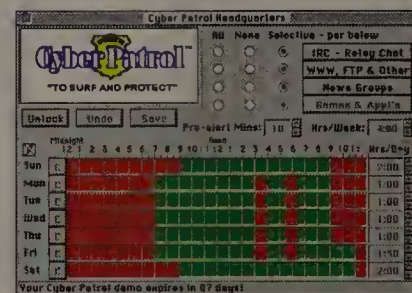
allow linking to any related business data. Three-user pack \$9750. Braided Matrix, 914/657-6411, 76662.2347@compuserve.com.

CinèMac for Director

Multimedia developers: turn your languishing Director files into full-featured screen savers. Despite the incorrect French accent in its name, MacSourcery's CinèMac takes Director projector files and converts them to self-contained screen savers. The company's upcoming CinèMac for QuickTime will create screen savers that play QuickTime movies. Requires Macromedia Director 4.0 or a Director projector file. (Director projector files are self-running Director files.) Personal version \$35; developer version \$300. MacSourcery, 619/747-2980, msourcery@aol.com.

Cyber Patrol 1.0

So you've read the articles criticizing the *Time* magazine cyberporn story, but you're still worried about scandalizing your little tyke. Microsystems' Cyber



Cyber Patrol 1.0

What Do You Say When You're Out Of Memory?

I need RAM Doubler.

The more memory your Mac has, the more productive you'll be. But forget about adding SIMMs. RAM Doubler™ is software that doubles your Mac's memory. *RAM Doubler does what it says it will do.*~Macworld. And you don't have to open your Mac. Just run RAM Doubler's 15 second installation and you can run twice as many applications – instantly. *May well be the best investment you make this year.*~MacUser. You'll agree. Buy RAM Doubler today and double your RAM with one click. Your satisfaction is guaranteed. RAM Doubler is available wherever great software is sold.



System Requirements: Macintosh equipped with a 68030, 68040 or PowerPC microprocessor. System 6.05 or later, including all versions of system 7 • 4 MBs required (hard disk required for machines with 4 to 6 MBs) • Not compatible with Mac SE, original Mac Classic, original Mac LC or PowerBook 100 or Mac II without a 68851 PMMU or any accelerator that does not work with virtual memory.



© 1995 Connectix Corporation. 2655 Campus Drive, San Mateo, CA 94403 USA. 800-839-3629 • 415-571-5100 • FAX: 415-571-5195
EMAIL: info@connectix.com • RAM Doubler is a trademark of Connectix Corporation. All other trademarks are the property of their respective holders.

Fax On Demand 1-800-234-0455 ext. 671

Circle 192 on reader service card

POWER

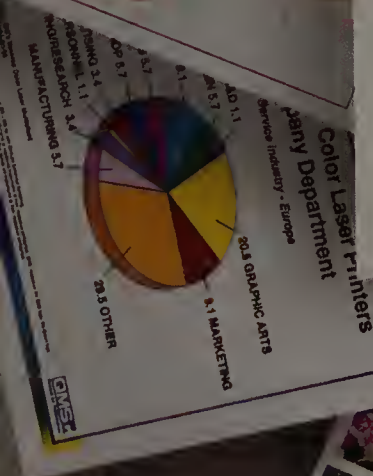
FULL COLOR

POWER

FULL NETWORKING

POWER

FULL PRINTING



**The QMS *magicolor* CX Laser Printer • \$7,999*
600x600dpi with Microfine Toner • Letter & Legal
6ppm/Color • 12ppm/b&w • CrownCopy™ Copier
Option • Network-Ready • Serverless Printing**

 Add this powerful color laser printer to your business. The power to bring documents and images to life. In crisp b&w and vivid color. From any platform. Any protocol. By anyone on the network. The QMS® *magicolor* LX Laser Printer—from \$4999* & the QMS *magicolor*® CX Laser Printer—from \$7999. Make your next statement a powerful one. Call QMS today for your FREE "Network Printing for Professionals" Interactive Disk. 800 392-7559 Dept. 5078. Internet: <http://www.qms.com/>

QMS

Printers for Professionals.

For service on QMS or other products, call 800 762-8894 (U.S.) • Q-Fax 800 633-7213 • Canada 800 991-2000 *QMS Reference Price (U.S.) QMS, the QMS logo, *magicolor* and CrownCopy are trademarks or registered trademarks of QMS, Inc. One Magnum Pass, Mobile, AL 36618, 334 633-4300. © QMS, Inc. 1995

Circle 288 on reader service card

New Products

Patrol blocks access to sites the company has deemed unsuitable for youngsters. The CyberNot Block List is divided into categories, and access can be restricted by directory so that appropriate material at a particular site is not blocked. \$50, includes three updates to the CyberNot Block List. Microsystems Software, 508/879-9000, cyber@microsys.com.

DataManager 1.1

This 4th Dimension-based application works with AppleScript to create a job-tracking and work-flow database for the prepress industry. DataManager classifies media into one of three types. Jobs originate on an online volume (for active files) and must be moved to a near-line volume (for files that need to be accessible but not as quickly accessible as active files), and archived or trashed when the job is complete. You can locate a job in the database, view the job's specifications, and retrieve the correct file. The product also includes service-bureau output support for QuarkXPress. \$895. Color Systems Support Group, 210/691-8444.

FilterTop

Created by an Internet-based group of Mac programmers, this batch processing utility lets you perform a series of filtration operations on files. The product comes with more than 30 filters whose functions include the ability to combine multiple files into one; to find and replace text throughout a document; and to add Mac-specific characters to text, including smart quotes, carriage

returns, and ligatures. The organization provides templates, guides, and examples to aspiring filter developers. Free. TopSoft, info@topsoft.org.

MacArchitect 2.0

The new version of this financial-management program for architects includes a revised interface and enhanced reporting capabilities. Version 2.0 also sports a feature that lets managers view staff activity in a variety of combinations. The product is compatible with upcoming modules from Beedee, which add payment generation and timesheet functions. \$795. Beedee, 206/443-1010, beedee-sales@beedee.com.

MailKeeper

Electronic information is great—but where do you put it? Nisus's MailKeeper stores, retrieves, and searches E-mail messages, text clippings, Web URLs, and electronic addresses. Using a technology called Guided Information Access, the product captures text with one keystroke—and you don't have to leave the active application. MailKeeper recog-

nizes and categorizes E-mail addresses, and you can use the program to drag and drop URLs directly into your Web browser. \$39. Nisus Software, 619/481-1477, info@nisus-soft.com.

me²

This self-development software reveals a person's dominant instinct—his or her most natural approach to doing things. Developed with psychologists, me² has three modules: Personal Success Profile, Relationship Success Profile, and Job Success Profile. The program aims to help people understand their motivation, drive, and strengths so they can develop strategies for success. You can download the product from Humagement's CompuServe (GO METWO), FTP (<ftp://www.humgt.com>), or Web (<http://www.humgt.com>) sites; to unlock the product, users need to call the company. \$70. Humagement, 602/266-9300, 71674.1670@compuserve.com.

MegaDial

Are you a frequent flier who can't manage the multitude of phone numbers for your online service, ARA, and Internet connections? Cypress Research wants to help. The company's MegaDial is an intelligent dialing assistant that automates modem-based dialing from various communications programs. MegaDial's database contains dialing information and a list of 7000 local-access numbers for popular online services. The product can also set your system clock to the proper time and remember your calling card number.

\$80. Cypress Research, 408/752-2700, sales@cypressres.com.

ScriptWizard 1.5

The new version of this editor for AppleScript supports true statement-level animated single stepping, including script statements that don't send Apple events, and subroutine calls. You can script one window from another and test applet handlers within ScriptWizard. The product also includes a script-execution tool bar, debugging features, and a find-and-replace feature. ScriptWizard is compatible with all Apple Open Scripting Architecture languages, including AppleScript. \$99. Full Moon Software, 510/843-6484, sales@fullmoon.com.



Series 3 Screens

Series 3 Screens

Why not turn your Photoshop documents into works of art? Series 3 Screens lets you create a digital mezzotint by adjusting an image's tonal range. The screens translate the gray tones of an image into black dots of various sizes, creating velvety textures and bold contrasts. *continues*

Break the speed limit.

Break the speed limit on your Mac with Speed Doubler™. It's software that installs in seconds, requires no hardware upgrades and takes your Mac to the next level of performance. You get faster access to the data you use most. Faster disk access. Faster Finder performance. And check this: Speed Doubler automatically doubles the emulation speed on Power Macs.

With Speed Doubler, Power Macs instantly run non-native applications twice as fast! For instance, recalculate a 5000 cell Excel 4.0

spreadsheet with Speed Doubler in 6 seconds, without it...13 seconds. Run a summary calculation of 1500 FileMaker Pro records in 90 seconds instead of 3 minutes. It's not magic. It's Connectix Speed Doubler. And if you own a Power Mac, you gotta have it. Get Speed Doubler today wherever fine computer products are sold. Your satisfaction is guaranteed.



Requirements: Macintosh equipped with a PowerPC, 68040 or 68030 microprocessor • System 7.0 or greater • 8 MB physical RAM or greater • Compatible with Connectix RAM Doubler • Not compatible with Mac Plus, Mac SE, original Mac Classic, original Mac II, or PowerBook 100.

© 1995 Connectix Corporation. 2655 Campus Drive, San Mateo, CA 94403 USA • 800-839-3629 • 415-571-5100 • FAX: 415-571-5195 • EMAIL: info@connectix.com
Speed Doubler and RAM Doubler are trademarks of Connectix Corporation. All other trademarks are the property of their respective holders.

Fax On Demand 1-800-234-0455 ext. 671

Circle 193 on reader service card

The future looks DIMM.



The new PCI-Based Power Macs have loads of room for RAM and Cache upgrades. In fact the 9500 is upgradeable to 512 Kb L2 Cache and a remarkable 1.5 GB of RAM! But fitting all that memory into such a small space required more than a shoe horn. It took a whole new technology called DIMMs (or Dual In-line Memory Modules). It's a technology that Viking helped pioneer, which basically fits twice the memory in half the space. It's also a technology that makes your future as a Mac user anything but dim.

Viking manufactures 256Kb Cache SRAM DIMMs, 2X64 and 4X64 DIMMs, 1MB and 2MB (for ATI Cards) Video Modules and more for all the new PowerMacs.



VIKING COMPONENTS

Certified Apple Developer

Manufacturing tomorrow's products. . .Today!

For the dealer nearest you, please call:

1-800-338-2361

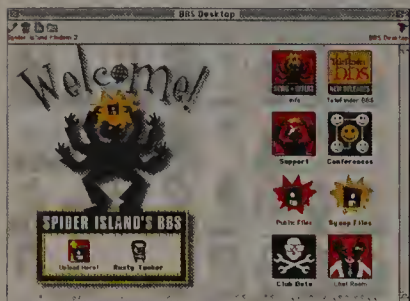
Circle 233 on reader service card

New Products

The Mezzogram feature lets you reproduce photos and other bitmap images as mezzotints with enhanced sharpness. \$149. Andromeda Software, 805/379-4109, 70324.43@compuserve.com.

StoryVision

Trying to plan the next *Myst*? This tool helps writers and designers map out an interactive project's structure. You create a blueprint for the project and attach text and graphics to your word processing file. StoryVision is designed for creating screenplays, video games, interactive advertising, and CD-ROMs. \$199. StoryVision, 310/392-5090, storyvisn@aol.com.



TeleFinder BBS 4.0

TeleFinder BBS 4.0

The new version of Spider Island Software's bulletin-board system is multitasking and multithreaded. TeleFinder BBS 4.0 includes E-mail, file-transfer, live-chat, and conferencing capabilities. It supports up to 80 simultaneous connections on a Power Macintosh over LAN, phone lines, ISDN, or Internet connections. TeleFinder can display graphics files and transfer files in the background; it

also supports Multipurpose Internet Mail Extensions (MIME) and automatically converts Binhex files. Two nodes and unlimited Mac, Windows, and DOS users \$675. Spider Island Software, 714/453-8095, info@spiderisland.com.

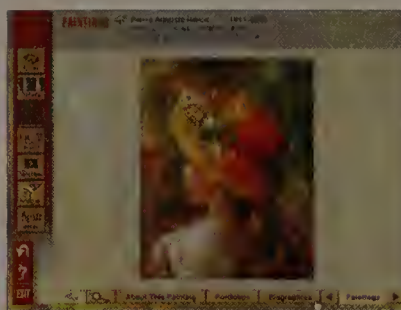
TypeIndexer

Wondering what all of your fonts really look like? TypeIndexer lets you print and catalog samples from all PostScript fonts, whether or not they're installed. The product prints 1, 2, 4, or 6 fonts or 15 faces to a page. The program will search mounted media for PostScript fonts, or you can select the fonts for which you require samples. You can export a master index of the font list, which contains each font's screen name, file name, file path, and font family name. \$50. Linographics, 714/639-0511, linograph@aol.com.

CD-ROMS

A Passion for Art

Cursing yourself for missing the tour of the Barnes art exhibit? Have no fear—the CD-ROM is here. Subtitled "Renoir, Cézanne, Matisse, and Dr. Barnes," this CD showcases Albert C. Barnes's famous private collection of impressionist and postimpressionist paintings. The viewer moves through a virtual gallery and hears the story of Barnes and his art. Historical photographs, audio, and minidocumentaries add to your cultural literacy. \$45. Corbis Publishing, 206/562-6000, deborahh@corbis.com.



A Passion for Art

The Crayon Factory

This kid's school project turned CD-ROM title tells the story of a crayon factory run by robots. Kids can either watch the story or explore the factory, where they learn to mix and make their own crayons, repair pipes and gears, sort colors, and adjust factory noises. The product keeps track of tasks completed and presents certificates as kids move up the ladder to the rank of factory expert. \$35. Philips Media Home and Family Entertainment, 310/444-6500.



The Crayon Factory

D&B MarketPlace

This marketing resource will help you target customers, analyze markets, cre-

ate mailing lists, and obtain marketing information for more than 10 million businesses. Each business entry contains the company's name, address, contact name, telephone number, type of organization, annual sales, number of employees, year founded, and location. The CD contains information collected and maintained by Dun & Bradstreet Information Services, a leading supplier of marketing information in the United States. Quarterly updates are available by subscription. \$849. MarketPlace Information, 617/672-9200.

Parent's Guide to Children's Software 96

Parents, are you unsure which CD-ROM to buy for your tot this holiday season? This CD-ROM from Newsweek helps parents select the right software for their kids. It features reviews of 50 products selected by Newsweek editors and a panel of children. The package includes videos of children's reactions to the titles; a 184-page book, with reviews on more than 250 products; and advice for parents on purchasing children's software. \$30. Newsweek, 800/634-3002, newi02a@prodigy.com.

Primal Rage

Yes, game fans, it's true—this popular arcade game is now available for your Mac. Primal Rage is a head-to-head fighting game that features seven prehistoric creatures in a battle for supremacy. Each fantasy dinosaur has an individualized fighting style and powerful secret *continues*

What Do You Do With A \$100 Digital Video Camera?

Have A Ball.

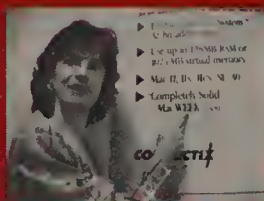
QuickCam™ includes everything you need to make movies and take pictures with your Mac. Plug in one cable, install the software and you're ready to roll. Add still photos to documents, newsletters, databases. Record QuickTime® training movies, video conference, create animated cartoons – all for around \$100. Works with all QuickTime compatible software and on all QuickTime compatible Macs, including PowerBooks®. It's easy, fun, and your satisfaction is guaranteed. Get your QuickCam today where fine computer products are sold.

 **Connectix**



QUICKCAM

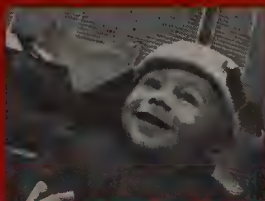
Everything you need
to make movies and
take pictures



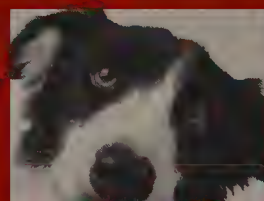
MAKE MOVIES



VIDEO CONFERENCE



TAKE PICTURES



BE CREATIVE

© 1995 Connectix Corporation. 2655 Campus Drive, San Mateo, CA 94403 USA. 800-839-3629 • 415-571-5100 • FAX: 415-571-5195 • EMAIL: info@connectix.com. QuickCam is a trademark of Connectix Corporation. QuickTime and PowerBook are registered trademarks of Apple Computer, Inc. All other trademarks are the property of their respective holders.

Fax On Demand 1-800-234-0455 ext. 671

Circle 191 on reader service card



MAKE THIS PRESENTATION BEFORE YOUR COMPETITION DOES.

Forget slides. Forget transparencies. Forget lifeless presentations. The world of presenting has changed forever. And Sharp, the leader in

LCD technology, is showing the way. It all starts with getting people's attention. And from the beginning they will know this is no ordinary presentation. Jumping from the screen are crisp, bright full-color images. And not just stills but exciting full-motion video. Now you've got their eyes engaged. How about their ears? Wham! An earfull of sound kicks in and blows them back in their seats. They've never experienced anything like it.

What's more, projecting success came easily. All you had to do was create it on your computer, plug it in to one of our projection products

and you were done. And Sharp has LCD panels that fit in your briefcase, projectors for a conference room, or portable units for easy traveling. Plus we have local, highly trained dealers to help you find the best presentation solutions. Call us today for a free demo and the free video "How To Project Success." Then watch success present itself.

CALL 1-800-BE-SHARP (PRESS 9) FOR FREE VIDEO

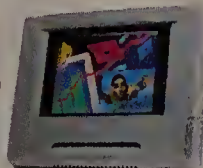


Hi-Resolution Panels

Large Screen Projectors



Portable Panels



Portable Projectors



S H A R P L C D P R E S E N T A T I O N P R O D U C T S
W E P R O J E C T S U C C E S S



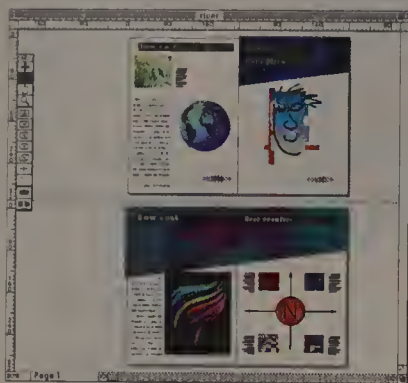
©1995 Sharp Electronics Corporation. Simulated Screen Image. LCD Product Group, Sharp Plaza, Mahwah, NJ 07430. (201) 529-8731, Fax (201) 529-9636.

SHARP
FROM SHARP MINDS
COME SHARP PRODUCTS™

Circle 44 on reader service card

New Products

moves. Your weapons include a Hot Foot, Snap-Tail-Whip, Bed-O-Nails, Gut Fling, Cranium Crusher, and other torture devices not appropriate for mention in this magazine. \$50. Time Warner Interactive, 408/433-3999.



Top 100 Layouts

Top 100 Layouts

Are you an aspiring designer who's stumped for new ideas? You can now legally borrow QuarkXPress layouts from professionals using this CD-ROM. The CD contains a total of 400 pages of royalty-free layouts for brochures, folders, business reports, and leaflets. You can modify elements, perform four-color separations, and apply other QuarkXPress functions to the layouts. Requires QuarkXPress 3.3. \$90. Main Screen, 310/604-9701.

The Underground CD-ROM SAT Handbook

Are you looking to boost your teen's SAT score? Here's a holiday gift for

you. This CD-ROM is the multimedia version of Workman Publishing's *Up Your Score*, a book written by four students who aced the SAT and went on to the Ivy League. Animated characters based on the four student authors show users how to answer questions rapidly, master question types, make educated guesses, and outsmart the SAT's logic. Lessons cover the four key areas of the SAT, and the product contains over 600 vocabulary words illustrated by mnemonic devices. \$50. Swfte International, 302/234-1740.

BOOKS

Classroom in a Book: Adobe PageMaker 6 for Macintosh

Learn by doing, not just reading. Each of this tutorial's ten lessons leads you through the creation of a complete project such as a newsletter, booklet, or magazine article. When you've finished all the lessons, you've been exposed to all of PageMaker's features. The book's CD-ROM holds all the files and templates required for the projects. 265 pages. \$45. Adobe Press, 317/581-3500.

Director Demystified

Macromedia Director, the powerful, but daunting, multimedia authoring tool, is a bear to learn. Jason Roberts attempts to tame the beast with tutorials aimed at both the novice and the intermediate Director user. Profiles of successful projects and extensive reference materials round out this weighty tome. Topics

covered include animation, interactivity, Lingo, XObjects, and debugging. The bundled CD-ROM includes a demo version of Director, Director movies, shareware, and clip media. 776 pages. \$40. Peachpit Press, 510/548-4393, ask@peachpit.com.

Kids, Computers, & Homework

Diane Kendall and James Lengel write for parents of third to eighth graders who want to help their children see computers as more than expensive game machines. The authors suggest ways to use standard programs such as Microsoft Word, ClarisWorks, Broderbund Software's Kid Pix, and Grolier's Encyclopedia to complete a wide range of school assignments in innovative and engaging ways. The book includes sample projects based on real homework, an introduction to the Internet, and tips on adding multimedia to reports. 356 pages. \$16. Random House, 410/848-1900.

Learn C on the Macintosh, second edition

Aimed at Macintosh users with little or no C programming experience, the new version of David Mark's step-by-step guide includes updated lessons and new code on C basics and advanced topics. The bundled CD-ROM includes a limited version of MetroWerks CodeWarrior that can be used to complete the book's exercises. 496 pages. \$35. Addison-Wesley Publishing, 617/944-3700.

Quark Design

Nancy McCarthy offers design tech-



Kids, Computers, & Homework

niques and technical tips for creating a wide array of publications with QuarkXPress. The color illustrations and extensive captions cover topics such as colorizing TIFF images, formatting financial data for an annual report, creating hanging indents, and preparing files for service bureaus. 140 pages. \$35. Peachpit Press, 510/548-4393, ask@peachpit.com. [m](http://www.peachpit.com)

To have your product considered for inclusion in *New Products*, send an announcement with product name, description, minimum memory, peripherals required, pricing, company name, and phone number to New Products Editor, *Macworld*, 501 Second St., San Francisco, CA 94107. *Macworld* reserves the right to edit all product announcements.

HoT HoT HoT HoT!



HoTMetal PRO™ 2.0 The Most Popular HTML Publishing Tool for the Web

 SoftQuad

Want to know more? Log onto <http://www.vmedia.com/htmlpro5.html> for details, system requirements and specials.

Available now at these and other software outlets. For information, call toll free: 1-800-743-5369.

Babbages

BEST BUY

COMPUSA

COMPUTER

EGGHEAD SOFTWARE

software

Circle 129 on reader service card

Another product from
VENTANA

"The coolest!"

"One of the coolest Web editors now shipping..."

MacWEEK, September 1995

"A real page churning."

NetGuide, November 1995

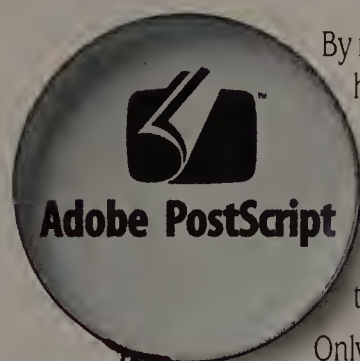
"Truly remarkable."

"... WYSIWYG display and a good sense of the structure of your HTML document ... encourages good HTML style."

World Wide Web Unleashed, 1994

Before You Invest in a High-Resolution Laser Printer, Take a Closer Look.

Introducing XANTÉ's **NEW** Accel-a-Writer 8200 Featuring Adobe PostScript Level 2.



By now, you realize there are other high-resolution laser printer manufacturers in the main stream, but chances are, you don't know if they offer *genuine Adobe™ PostScript™*. Well, just for the record, *Bo knows!*

Only XANTÉ® offers Adobe PostScript on a large format, high-resolution laser printer. And, since true PostScript guarantees high performance, incredible print quality, and software compatibility - you know it's the only choice!

You can purchase the Accel-a-Writer 8200 with 600 x 600, 800 x 800, or even 1200 x 1200 dpi - it's your call. Halftones, fine-line text, and graphics are phenomenal. And now, with oversized capabilities (up to 25"), you can print high-quality full-bleed newsletters, CAD drawings, spreadsheets, and more! XANTÉ's Accel-a-Writer 8200 is the new leader in affordable high-resolution printing. Accept no substitutes.

- **Adobe PostScript Level 2**

Guarantees superior quality, performance, and compatibility.

- **High Resolution**

600 x 600, 800 x 800, or 1200 x 1200 dpi.
HP-GL® emulation offers up to 1200 x 1200 dpi.

- **NEW Oversized Format**

Print full-bleed 11" x 17" pages and custom size output up to 12.08" x 25".

- **Simultaneous Macintosh®/PC Printing**

LocalTalk®, serial and parallel interfacing. Ethernet is available.

- **Faster Printing**

Incredibly fast printing, up to 16 pages-per-minute.
Faster processing with a 33 MHz AMD 29030 RISC Processor.

- **Automatic Emulation Switching**

Selects printer language between Adobe PostScript and HP PCL® 5.

So, before you buy a high-resolution laser printer, look for the Adobe PostScript logo, then call XANTÉ.

Circle 112 on reader service card

1-800-926-8839 ext. 2110

Dealers call ext. 2114 Fax 334-476-9421

MasterCard/Visa/American Express/Discover Card accepted.

 **XANTÉ**
Innovations In Output

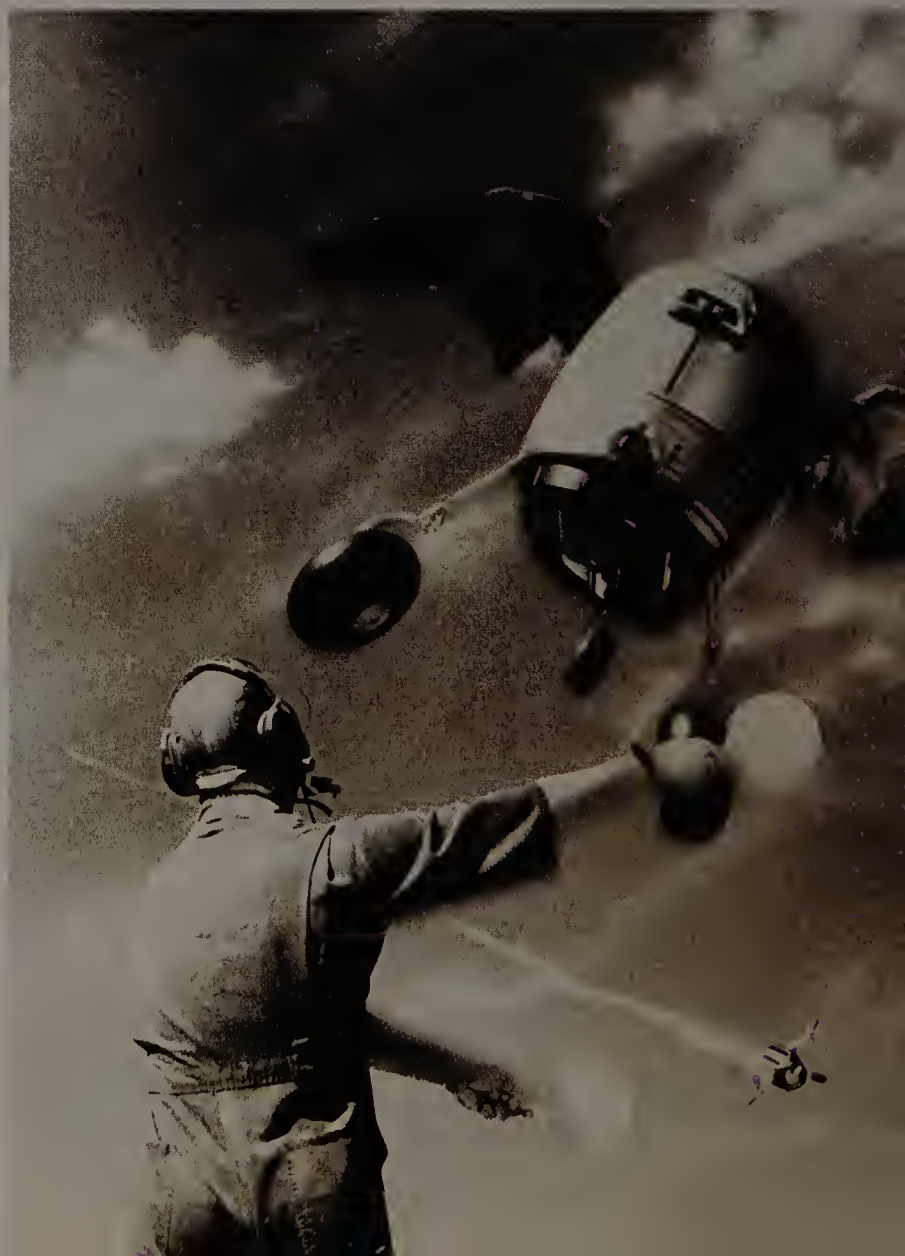
Accel-a-Writer 8200
16 PAGES-PER-MINUTE

OVERSIZE
PRINT PAGES UP TO 12.08" x 25"
1200 x 1200 DPI



Adobe PostScript

XANTÉ and Accel-a-Writer are registered trademarks of XANTÉ. Adobe PostScript is a registered trademark of Adobe Systems Inc. Other brands and product names are the property of their respective holders.





Just REWARDS.

ADOBE PHOTOSHOP 3.0

Since 1990, graphic artists, printing professionals and photographers have used Adobe™ Photoshop™ software to create the world's most visually rewarding work. They've made it the industry standard for photo design and production, print publishing and even multimedia and on-line design. So it's no surprise that Adobe Photoshop has earned every major award. Today, Adobe Photoshop 3.0 includes multiple layers for flexibility in image composition, Color Range for precision masking, CMYK Preview and Selective Color Correction for accurate prints. It's compatible with the latest Macintosh®, Windows® and UNIX computing platforms, including Power Macintosh™, Windows NT™ and Windows® 95. Reward yourself. Just call 1-800-521-1976, Ext. J1268 for information or to purchase our exciting Adobe Graphic Sampler CD* with tryout versions, interactive tips, and more. Or visit our web site at <http://www.adobe.com/>.



If you can *dream* it, you can *do* it.



Image credits: (clockwise from top left) Gerald Bybee, Robert Bowen, Martina Lopez, Eric Dinyer, Giles Hancock, M.A.D. *The Adobe Graphic Sampler CD is \$9.95 plus appropriate sales tax. Adobe, the Adobe logo and Adobe Photoshop are trademarks of Adobe Systems Incorporated or its subsidiaries which may be registered in certain jurisdictions. All other marks and trademarks are the property of their respective companies. ©1995 Adobe Systems Incorporated. All rights reserved.

Circle 250 on reader service card

Reviews

Power Macintosh 8500/120

System

PROS: Fast processor, SCSI bus, and CD-ROM drive; good entry-level video digitizing; excellent audio features; power-saving sleep mode.

CONS: Difficult RAM upgrades; 1GB configuration can't capture 30 video frames per second; some system software glitches. **COMPANY:** Apple Computer (408/996-1010). **COMPANY'S ESTIMATED PRICE:** With 2GB hard drive \$4839; with 1GB drive \$4299.

MW ★★★★★



FROM ITS FAST, FLEXIBLE video circuitry to its QuickTime moviemaking capabilities, the Power Macintosh 8500/120 is the most feature-packed Mac Apple has ever made. And although its name doesn't carry the AV monogram, it's also Apple's best-ever media-production platform.

Same House, New Occupant

The 8500 uses the same minitower case design as its predecessors, the Power Mac 8100 and the Quadra 840AV and 800. (Apple has announced 8500 logic-board upgrades for those Macs.) On the downside, upgrading memory in the 8500 is just as awkward and difficult as in the 8100, 840AV, and 800: you must disconnect cables, pull expansion cards, and remove the logic board to access the 8500's memory slots.

The 8500's central processor—a PowerPC 604 running at 120MHz—lives on a plug-in card, paving the way for inexpensive processor upgrades. For expansion, the 8500 provides three PCI slots. It also has a Digital Audio Video (DAV) slot that can accompany a video-compression card, although no such cards have been announced yet.

The 8500 uses new memory-expan-

sion cards—Dual In-line Memory Modules, or DIMMs—instead of the SIMMs that previous Macs used. The computer's logic board sports eight DIMM slots; fill them with 64MB DIMMs, and you'll have a whopping 512MB of RAM—and a bill for about \$16,000.

The 8500's reliance on DIMMs and PCI instead of SIMMs and NuBus is the main reason a logic-board upgrade may not make sense for owners of the Power Mac 8100 and Quadra 840AV or 800. Your NuBus cards won't work unless you buy a NuBus expansion chassis from Second Wave (512/329-9283), and your SIMMs won't work without special adapter cards from companies like Newer Technology (800/678-3726). Owners of the 8100, 840AV, or 800 who've made a big investment in NuBus cards and SIMMs may be better off buying a new 8500 and selling the old machine.

The 8500 is available with either a 1GB or a 2GB internal hard drive. If you have the extra \$540, get the 2GB drive—its faster transfer rate yields better video-digitizing results. Both configurations include 16MB of memory, an Apple 600i quadruple-speed CD-ROM drive, and the Apple PlainTalk microphone. Both also include a 256K Level 2 cache; the 8500's cache is DIMM-based, so you can expand it—but note that Macworld Lab tests show that 256K is an optimum size.

The 8500's built-in video circuitry supports 24-bit color (millions of colors) on monitors as large as 21 inches (no previous Mac's built-in video supported more than 16-bit color on 21-inch monitors). For this, however, you must expand the computer's video memory (VRAM) from the stock 2MB to 4MB.

The 8500 includes both an external and an internal SCSI bus. The internal



KEVIN CANDLAND

bus—the faster of the two—supports SCSI-2 Fast, allowing transfer rates of up to 10MB per second (depending on the hard drive you install). So if you get, say, a 4GB drive for video digitizing, you should install a bare internal mechanism instead of an external drive, in the 8500's spare drive bay. (The other option is to buy a PCI-based SCSI accelerator card, such as FWB's PCI SCSI JackHammer, and use it to connect external drives or disk arrays.)

The 8500 sports 17 rear-panel ports. In addition to the usual suspects—SCSI, ADB, modem, printer, and so on—there are 4 ports geared toward video: composite and S-Video input and output.

Also new—in both the 7500 and 8500—are two pairs of RCA phono jacks for stereo input and output. For example, you can use the Apple PlainTalk microphone for speech recognition or telephony tasks and still have an audio mixer or camcorder connected to the RCA jacks. Similarly, you can plug headphones or external speakers into the audio-output minijack, while a camcorder is connected to the RCA audio-output jacks. The 9500 and 7200 series do not have RCA phono jacks for audio.

The other new port is for networking: like all second-generation Power Macs, the 8500 has an Ethernet 10BaseT connector.

Field Test

Given the 8500's media-production features, I stressed video and audio applications when testing the machine. Generally, the 8500 worked well, although there were rough spots.

You can connect video recorders or camcorders to the input jacks and digitize incoming video to create QuickTime movies. I was disappointed with the 8500's video-digitizing performance, which fell short of 30 frames per second (fps) at a quarter-screen movie size (320 by 240 pixels). Apple says the 2GB configuration can capture 30 fps; having tested a 1GB model, I can't verify this claim.

To capture movies, you can use any QuickTime-compatible digitizing pro-

gram. The 8500 includes a bare-bones capture utility called Apple Video Player, as well as Avid's VideoShop.

The Apple Video Player utility can also display (but not capture) full-screen, 30-fps video. Professional video producers requiring this level of digitizing will need additional hardware.

Movies captured with the 8500 look great—Apple has definitely improved the digitizer over that of the Power Mac and 68040-based AV models. Even more impressive is the 8500's ability to zoom quarter-screen movies to fill the screen at playback time. Don't confuse this with QuickTime 2.0's full-screen mode, which simply doubles pixels, creating a chunky look. The 8500's video circuitry interpolates pixels—creates new pixels based on existing ones—as the movie plays back.

Connect a video recorder or camcorder to one of the 8500's video-output jacks, and you can videotape a finished QuickTime movie or anything else that appears on the screen—and in full, 24-bit color, not the 16-bit color previous AV Macs were limited to. But a stock 8500 will work against you. Because 2MB of VRAM isn't enough to send an image to the computer monitor and a video device simultaneously, outputting to videotape is a cumbersome procedure—you have to shut down, disconnect the monitor, and then start up again. Avoid the hassle by upgrading to 4MB of VRAM.

In the audio department, the 8500 worked flawlessly with Macromedia's SoundEdit 16, Digidesign's Session Software, and Opcode Systems' DigiTrax. The 8500 won't run version 2.2 of OSC's Deck II multitrack recording software, but OSC says the forthcoming version 2.5 will work.

The built-in audio and video capabilities are only half of what makes the 8500 an ideal media-production tool. The other half is the 120MHz PowerPC 604—just the kind of processing punch needed for compressing QuickTime movies, creating special video effects, crunching through Adobe Photoshop filters, processing audio files, and rendering 3-D images.

Interesting Extras

The 8500 has some additional goodies: an Energy Saver control panel lets you put the computer to sleep or spin down its hard drive after a period of inactivity. A keystroke or an incoming fax or modem wakes the system up. The 8500's fan, however, remains on during sleep mode. System 7.5.2 also includes a kitchen-sink set of Apple's latest technologies, including QuickDraw 3D and QuickTime Conferencing.

But the 8500 has some compatibility problems just being solved at this writing. The Open Transport software that shipped with System 7.5.2 proved to be buggy and incompatible with some networking products (see *News*, October 1995). Open Transport 1.1, in prerelease form at this writing, will hopefully solve the problem for good. Another problem concerns printing: second-generation Power Macs had a tendency to freeze during print jobs. An Apple extension, called 7.5.2 Printing Fix, improves things considerably and is available online.

Beyond these problems, a glance at the System 7.5.2 System Folder shows that the Mac OS has become an unwieldy web of extensions, patches, and enablers. An 8500's stock System Folder contains 126 items in Extensions alone. Memo to Apple: We need a streamlined Mac OS.

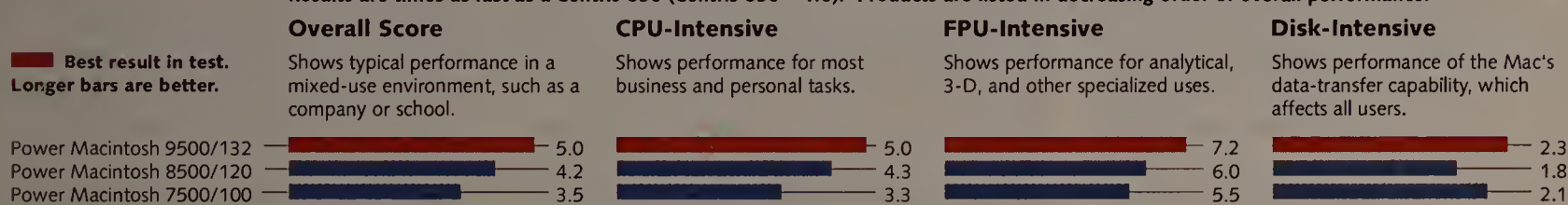
The Last Word

But these problems don't significantly detract from the 8500's appeal as a media-production platform and power user's delight. With its PCI architecture and fast internal SCSI bus, the 8500 sheds the baggage that hamstrung the first-generation Power Mac AV models. Video pros will need additional hardware, but many people—low-budget CD-ROM producers, corporate presenters, educators, and QuickTime buffs—will find the 8500's built-in digitizing adequate. I wish that every 8500 included 4MB of VRAM and a hard drive capable of 30-fps captures, but you can probably buy these components for less than what Apple would charge you anyway. The 8500 is a feast for the power hungry.—JIM HEID



Power Macintosh 8500/120

Results are times as fast as a Centris 650 (Centris 650 = 1.0). Products are listed in decreasing order of overall performance.



Macworld Lab testing supervised by Danny Lee

Infini-D 3.0

3-D Software

PROS: Excellent rendering and animation tools; new spline-based modeler. **CONS:** Limited 3-D-object editing; price increase. **COMPANY:** Specular International (413/253-3100). **LIST PRICE:** \$899.



AMONG 3-D DESIGN AND VISUALIZATION programs, Infini-D has garnered praise for its good balance of modeling, rendering, and animation tools. I've had occasion to say so myself. But I've also noted that the program was a weak modeler. Well, that's changed.

Infini-D 3.0 has a new spline-based modeler that runs circles around its predecessor and attains a level of parity with the rendering and animation components of the program. Those already excellent components have also been improved. Add a sprinkling of interface enhancements, and Infini-D 3.0 is more accessible and offers a better balance of features than ever before.

Spline Modeling

Basically, Infini-D 3.0 builds all 3-D objects by extruding a 2-D shape along a path—it pulls a cylinder from a circle, for example. The path forms the backbone for the object, and four lines, called rails, surrounding the path define the surface of the shape.

The SplineForm workshop is derived from the lathe and extrusion workshops of past versions, so Infini-D veterans should adapt quickly. Individual editing windows display the object's cross section and the 2-D elevations (front, side, and so on) of the path and rails. The 3-D object appears as a wire frame in its own window, where editing changes update automatically and you can rotate the object to view it.

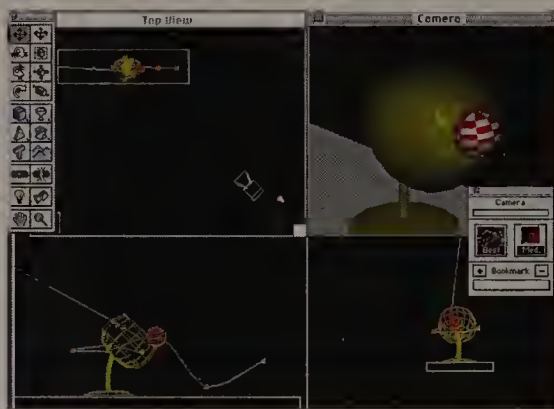
Paths, rails, and cross sections are all editable splines you can manipulate in the 2-D views using Bézier handles that behave just like those of illustration programs. Infini-D 3.0 builds all objects in the same manner. Objects that are traditionally lathed, like goblets and bottles, are instead built by molding the rails into the proper outline. As you build objects, the interaction of paths and rails offers great freedom to create complex shapes. For example, by reshaping the rails, you can deform an object's skin without altering the profile of the initial cross section.

Also, you can alter basic objects by adding variably shaped 2-D cross sections along the path; the program automatically reshapes the skin over the ribs. Adding cross sections produces an object with more control points, resulting in a more precise and editable shape.

Versatile though it is, the SplineForm workshop is not as adept as higher-end modelers, such as Autodesk's FormZ, Macromedia's MacroModel, or Byte-by-Byte's Sculpt 3D. For example, you can't deform an object by selecting individual points on the 3-D surface mesh, and you can't tug at individual surface-mesh splines. The SplineForm workshop, however, is a great addition that brings Infini-D to another level in 3-D modeling.

Animation and Rendering

The path-and-rails foundation of its objects makes Infini-D 3.0 an excellent vehicle for character animation. You can move the spline backbone of an object to produce natural-looking bending motions. As you bend objects, the rails-defined surfaces stretch and buckle, sim-



Bending the Rules Spline-path backbones let you create objects that bend and twist naturally—great for character animation.

ulating undulating skin. And you can push and pull the rails for effects like rippling muscles and breathing pulsations.

The enhanced animation sequencer offers improved control of object motion. When you double-click on an object name, the sequencer expands to display separate timelines for individual attributes—such as positioning, rotation, scaling, and surfacing—letting you control each independently. And Infini-D reserves a channel for information pertaining to specific object types. For example, you control changes made using the SplineForm workshop, such as bending an object's spine, with this channel.

Double-click on event marks in the sequencer and a new Info dialog box lets you fine-tune the object's transition through the event. You can adjust motion curves for tension (stiffness), bias (peak point relative to the event), and continuity (the motion's smoothness), producing

smooth or jerky transitions as desired—this fine-tuning is much better than the previous ease-in, ease-out controls.

In addition, Infini-D lets you fine-tune object motion and animation effects with individual velocity graphs. Each graph displays a motion curve, with control points corresponding to every event mark. You move control points to adjust the acceleration and speed of object attributes. The velocity dialog box holds two graphs with pop-ups for changing the active attribute. However, if you start over on one graph, the Reset button kills all the changes in the other. There should be a way to lock graphs or perhaps reset them individually.

New lighting and surfacing options add rendering versatility to Infini-D 3.0. A distant-light option lets you simulate parallel-light sources, like sunlight. You can now project images into a scene, or use them to produce shadows from off-scene objects. You can calibrate spot and point lights for realistic dimming effects. And you can now apply textures as surface decals that flex with the skin as an object moves. Overall, the program's texture-editing tools, image- and environment-mapping effects, and output-rendering options remain excellent.

With Infini-D's increased control of animation variables, it's easy to overlook its ability to automate complicated tasks. Although not new to this version, Infini-D's Animation Assistants can produce many of the program's motion-control effects automatically. The Assistants are great for novice users, but pros facing deadlines will also appreciate them.

Finally, Infini-D 3.0 includes some nice interface enhancements. For example, a Views floater now gives access to quick-rendering options and to preset viewpoints for any active window. Infini-D 3.0 is easy to use, but as with any 3-D program, sooner or later you'll turn to the manual. In this case, you'll find it well organized and clearly written.

Specular anticipates shipping version 3.1 of Infini-D in late October. This upgrade (free to all registered users of version 3.0) improves Infini-D's speed and adds QuickDraw 3D support as well as a few other features.

The Last Word

Capable of professional-quality rendering and animation, Infini-D 3.0 is nonetheless understandable enough for novices. The new spline-based modeler makes Infini-D a more capable and better balanced production tool. Unfortunately, 3.0 costs more than the last version, but it's still an excellent value.

—CARLOS DOMINGO MARTINEZ

ArcView 2.1

Geographic Information Systems Software

PROS: Intuitive interface; compatible data widely available; easy to customize and enhance.

CONS: High memory and processor requirements; some minor quirks and rough edges.

COMPANY: Environmental Systems Research Institute (909/793-2853, ext. 2050). **LIST**

PRICE: \$995.



MAPS ARE AN EFFECTIVE way to convey many types of information, ranging from customer addresses along a delivery route to the location of owl nesting sites in a forest. Geographic information systems (GIS) are applications that let you visualize and analyze data in the context of maps. Environmental Systems Research Institute (ESRI) dominates the high-end GIS market with its sophisticated Unix product, Arc/Info. ArcView 1.0, available only for PCs and Unix workstations, could display and query digital maps in Arc/Info format. Version 2.1, now available for the Mac, dramatically expands ArcView's ability to handle sophisticated geographic analysis, data management, and presentation graphics.

ArcView requires 16MB of RAM to run on a Power Mac. For best performance, ESRI recommends a Power Mac 7100 or better. The ArcView package includes a CD-ROM and disks containing the program and an extensive set of sample data, plus two slim manuals. More extensive documentation is available only through the program's built-in help. The program and other run-time files occupy 17MB on disk; the sample data takes up another 83MB. These requirements may limit ArcView's accessibility for average Macintosh users.

ESRI has ported ArcView 2.1 to a broad range of platforms. For users who interact with clients or colleagues working on other platforms, this universality will be a boon, but dedicated Mac enthusiasts will be disappointed by the plain, klunky nature of controls and dialog boxes, and the program's occasional non-Mac-standard behavior.

Getting Started

Despite its lack of aesthetic sophistication, ArcView's interface allows the

user to organize geographic information and tabular data in a powerful and intuitive fashion.

In ArcView, you work within Projects. These may contain a variety of inter-related components, including map views, tables, charts, cartographic layouts, and scripts. The components appear in separate windows but are easy to access from a Project palette. As the user switches between component windows, menu options and tool-bar buttons automatically change accordingly.

Typically, a map view is the first component created in a new Project. Double-clicking on the Views icon in the Project palette opens a new display window, in which any number of map layers (or themes, in ArcView parlance) can be combined to create a visual data display. ArcView maintains legend information for the view in a Table of Contents pane within the View window.

For example, say that you wish to know the distribution of per capita income in a particular city. Assuming that the necessary data is available on your hard drive, selecting Add Theme from the View menu allows you to choose a demographic map, in which the city is divided into a number of smaller areas (such as street blocks or neighborhoods), and add it to the Table of Contents. Each area is then linked to a record in a data table containing an income field and any number of other characteristics. You can add additional themes, such as streets, landmarks, and water features, to the view. You can also turn the display of individual themes on and off using check boxes in the Table of Contents.

Double-clicking on the map name in the Table of Contents brings up the Legend Editor, where you can select Income as the attribute to be displayed and choose dollar ranges and corresponding colors and patterns for each range. ArcView assigns ranges and colors automatically, although you may want to edit its choice of colors, which leaves something to be desired.

ArcView also includes a variety of tools for zooming in and out of a view to focus on details or get the big picture. Unfortunately, large, complex views can take more than 15 seconds to redraw with each zoom.

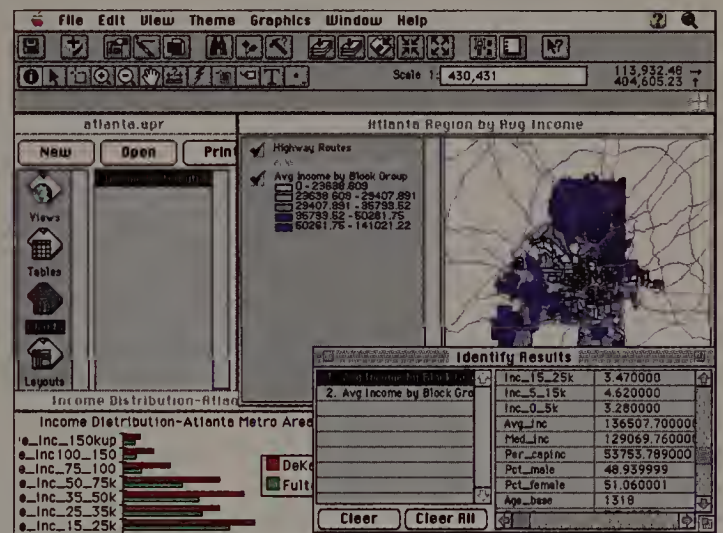
ArcView allows you to use data from tables in several formats, making the data available for display in graphic form. The simplest way to do this involves match-

ing records based on a common field, such as zip code. ArcView also has an accurate, easy-to-use address-matching facility, so that records containing address information can be assigned geographic locations and displayed.

Hot Links, a particularly nice feature, allows you to link data from other apps to map features. Hot Links can perform virtually any action, including displaying a text file, an image, or a video clip or executing a script.

ArcView allows you to easily create decent-looking presentation maps. The program comes with two basic map templates that include common cartographic elements, such as north arrows and scale bars; you can add templates using the Layout Editor.

Creating professional-looking graphics is somewhat more difficult. The Layout Editor allows you to create and align elements such as views, graphs, text, and legend boxes. However, the Editor doesn't always work well; for example, resizing a legend box causes its text to



Map Analysis ArcView works well for browsing and performing simple analyses on geographically oriented data.

change size as well, even though the font size indicated in the fonts palette does not change. ArcView provides the option to export layouts to EPS or Adobe Illustrator files for more complex graphics work; however, the exported files do not always appear as they did in ArcView.

Map Query

The program also offers a set of powerful tools for asking precise questions of a geographic database. ArcView's Query Builder lets you put together mathematical expressions to select map features based on their attributes. The Query Builder is almost too simple, though; the operations shown in the dialog box are only a small subset of those actually available. Also, users should beware: mathematical operators do not follow normal precedence rules in ArcView, so

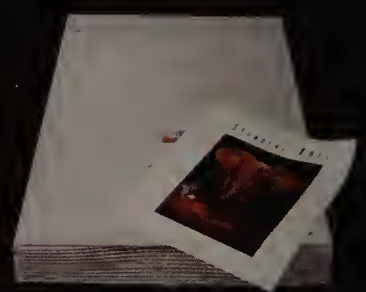
continues

After failing to program his VCR for the last time,
Tiny welcomed the simplicity of his HP ScanJet scanner.



Introducing the HP ScanJet 4c

From set up to start up, from software installation to image capture, the HP ScanJet 4c makes the whole scanning process easier. 2400-dpi enhanced resolution (600-dpi optical), internal 30-bit color, and 1,024 levels of gray produce documents that are rich, detailed, and impactful. The HP ScanJet 4c also includes image-editing software, OCR software for text recognition, and new software for electronic file distribution and management. For more information, call 1-800-SCANJET, Ext. 1022.[†]



\$995*

**The easiest thing
you'll do all day.**

*Estimated U.S. retail price. Actual price may vary. †In Canada, call 1-800-387-3867, Dept. 265. Contact us on the World Wide Web at <http://www.hp.com/Info/1022> ©1995 Hewlett-Packard PE12580

 **HEWLETT®
PACKARD**

liberal use of parentheses is necessary.

ArcView can also select features based on their spatial relationships to features in another theme in the same view. The Select by Theme dialog box has a straightforward set of pop-up menus that let you create an expression such as "all features within 100 feet of selected features in the roads theme." ArcView's spatial selection is admirably speedy. When selected, the map features are highlighted both in the view and in the corresponding attribute table, allowing for easy cross-referencing.

ArcView includes a sophisticated object-oriented scripting language, Avenue, that allows users to customize the program's interface and add functionality. You can edit menus and tool bars and add new commands.

The scripting environment within ArcView is not particularly polished, however. Compile-time error checking is limited, which can lead to frustrating program crashes. It's even possible to corrupt project files during the process of developing a script. Also, ArcView does not have an option to record user actions to create a script.

ArcView or MapInfo?

Macintosh users can now choose between two desktop GIS applications: ArcView 2.1 and MapInfo 3.0. Neither program has a clear-cut advantage over the other. Free or low-cost data, particularly in the realm of natural resources, is more widely available in ArcView-compatible format, due to the predominance of ESRI's Arc/Info software among government agencies and universities. ArcView's interface is more comprehensible and better organized than MapInfo's. And ArcView costs several hundred dollars less than MapInfo.

On the other hand, MapInfo has some functionality that ArcView is missing, including a full-fledged facility for tracing paper maps using a digitizing tablet, a better query interface, and more robust capabilities for creating buffers and intersecting area features between two maps. MapInfo's documentation and support are also stronger, although free technical support for both programs is limited to a brief period.

The Last Word

Overall, ArcView 2.1 is a useful, well-designed tool for visualizing and analyzing geographic data. Future releases of the program would benefit from some polishing of the interface, but these are relatively minor detractors for those who want to explore the spatial dimensions of their data.—KARL GOLDSTEIN

DeltaGraph Pro 3.5

Graphing Software

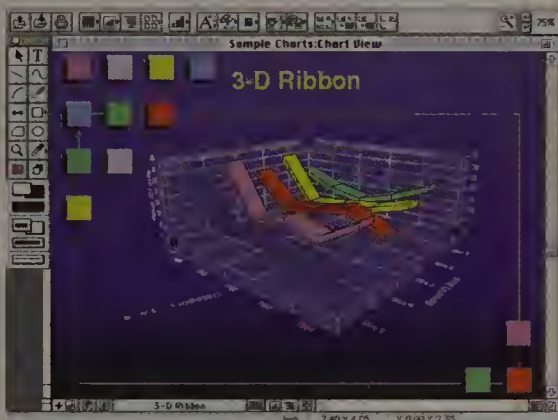
PROS: Easy to use; many new graph types.

CONS: None. **COMPANY:** DeltaPoint (408/648-4000). **LIST PRICE:** \$195.



DELTAGRAPH PRO competes directly with Microsoft Excel and its built-in graphing capabilities. Graphing packages only survive if they offer more features, more convenience, and better chart output than Excel, which is ubiquitous on Mac desktops. In this ferociously competitive arena, DeltaGraph Pro stands out from the pack.

DeltaGraph Pro is a single program that competes successfully in two areas: scientific and engineering graphing, and business charts. Science journals and reports usually publish graphs in black and white, so a scientific graphing package has to offer precise control over tick marks, axis formatting, and other monochrome details, and it should also provide curve fitting for chart points. Wave Metrics' Igor Pro, which includes full-scale



Color-Coded for Business Though it also offers scientific amenities (curve fits, exotic chart types), DeltaGraph Pro makes it easy to fancy up plain charts for business presentations, using layouts from its Chart Gallery.

programming capabilities, is probably the most powerful package for this market, but DeltaGraph can hold its own in preparing most types of charts for publication. And though Microsoft's PowerPoint goes far beyond Excel in business graphics and slide-show presentations, DeltaGraph can do all PowerPoint's tricks—it has a library of fancy prepared layouts and backgrounds—and it's faster and easier to use. This program has it all—speed and features—and you can learn it in five minutes.

Version 3.5 offers some major en-

hancements over 3.0. The Chart Gallery has been overhauled so it's much easier to find the style you need in the array of 60-plus possibilities. The old gallery had business, scientific, and statistical groupings—the new gallery is organized by type (bar, line, and so forth). There are six new charts for quality control (the only noticeable omission from the previous version, which offered such seldom-seen types as vector, donut, Pareto, and ogive charts). Besides the improved gallery organization, DeltaGraph's updated Chart Advisor will inspect your data table (DeltaGraph Pro data is stored in spreadsheet-like structures) and suggest the best chart type for presentation—this keeps you from making basic charting mistakes, such as putting 18 elements into a pie chart. DeltaGraph Pro 3.5 now automatically (one might add, finally) updates charts as soon as you change numbers in the spreadsheet data page. The last important new feature is Apple Guide-based help. DeltaGraph has always been a program you could use without consulting the manual often, but with Apple Guide you might not even take the manual out of the box.

The list of DeltaGraph's virtues is long and impressive. In its Power Mac version, it's very fast—charts for standard-size sets of business data, 20 by 100 cells or smaller, update in a few seconds. Pictograph charts are as easy to make as bar charts, and slide shows are simple to arrange in Outline mode. DeltaGraph not only imports files from any text source, CA-Cricket Graph, and Excel, but it can also set up hot links to the original data files in case they're changed later. You can also drag charts between multiple open documents. Looking back at previous versions of DeltaGraph, Delta Point has systematically answered every complaint or suggestion mentioned in earlier reviews. The Windows version works exactly like the Mac version, and DeltaGraph also runs under System 6.0.2, good news if you're still using a IIx. Mac-software nostalgia buffs should note that DeltaGraph imports files from Trapeze, a spreadsheet program that was ahead of its time nine years ago and would still look avant-garde in today's environment.

The Last Word

DeltaGraph Pro is the right choice for all but the simplest or most esoteric charting jobs—it's the program to use 95 percent of the time. Version 3.5 has all virtues and no vices, and it's even reasonably priced.—CHARLES SEITER

COREL STOCK PHOTO LIBRARY

**20,000
PHOTOGRAPHS
ON 200 CD-ROMs
IN EACH LIBRARY!**

High Resolution & Royalty Free

Kodak Photo CD Format

Mac & PC Compatible

Ideal for Desktop Publishing

HIGH RESOLUTION - 5 resolutions from 128 X 192 up to 2048 X 3072. Each image is approximately 18 megs (uncompressed).

COLOR FUNCTIONALITY - Grayscale, 16 colors, 256 colors or RGB (24 bit).

EXPORT FILTERS - Macintosh: TIFF or PICT. Windows: TIF, BMP, EPS, PCX or GIF.

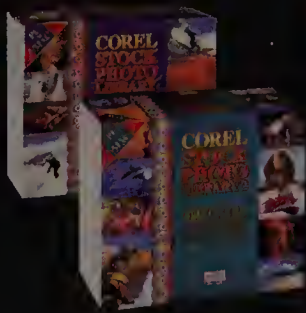
COMPATIBILITY - Can be read by any CD-ROM player (XA support not needed).

ALSO INCLUDES:

- Corel Visual Database - Search for specific images from the 20,000 photographs available using descriptive keywords.
- Full-Color Reference Manual - Displays all 20,000 photographs.

OTHER UTILITIES:

- Corel Photo CD Lab
- Corel Mosaic Visual File Manager
- Corel Artview Screen Saver
- Corel CD Audio
- Windows Wallpaper & Flipper



\$699⁹⁵*
each

Corel Professional Photos are also available in volume sets (2,500 photos) and as individual titles (100 photos).

**The Mac
Zone™**
Your Catalog SuperStore

1-800-248-0800

*US\$ plus applicable taxes.



COREL GALLERY 2

FOR MACINTOSH™

15,000 · 500
Clipart Images Fonts

(5,000 new images plus 10,000 images from Corel GALLERY 1)

(Type 1)

and • A powerful multimedia file manager
• 75 sound clips • 10 QuickTime movies

Plus! • Adobe Type Manager
• Master Juggler
• File conversion

Windows® version also available



\$64⁹⁵*
each

Enter the Corel \$3,000,000 World Design Contest and win! (September '95 to April '96)
To receive a faxed copy of the rules and an entry form please call:
1-613-728-0826 ext. 3080, Document # 1125.
To leave a message please call: 1-613-728-0826 ext. 81609.

Corel
http://www.corel.com

Call now for faxed literature!
1-613-728-0826 ext. 3080

Circle 78 on reader service card

Digital Cameras

Low-Res Cameras under \$1000

Kodak Digital Camera 40

PROS: Slightly higher image resolution than QuickTake's; 48-picture image capacity; long battery life; accommodates 37mm lenses. **CONS:** Takes too long to transfer images to disk; makes it easy to delete images accidentally; you can't see effects of lenses. **COMPANY:** Eastman Kodak (716/726-7260). **LIST PRICE:** \$995.



QuickTake 150

PROS: Quickly transfers images to disk; straightforward camera controls; better software than Kodak unit. **CONS:** Holds fewer images at lower resolution. **COMPANY:** Apple Computer (408/996-1010). **COMPANY'S ESTIMATED PRICE:** \$739.



FILM IS ON ITS WAY OUT. CONSUMERS of the future won't have to visit the local grocery store or quick-photo outlet to see their pictures. They'll just download the things to computers, view them on the tube, and—if they're feeling particularly nostalgic—print them out and slap them in an album. And it'll happen before we're all flying around with jet packs strapped to our backs—probably within the next ten years.

Meanwhile, Apple's QuickTake 150 and Kodak's Digital Camera 40 (DC40) are consumer-quality digital cameras with professional-level price tags. Both are fixed-focus with built-in flashes, equivalent to point-and-shoot film cameras costing \$50 or less. Even if you know your way around digital imaging, you're probably better off using a 35mm film camera and developing the pictures for Photo CD at \$1 to \$2 per photo. Currently, the advantage of the QuickTake or DC40 is expediency. If you want to shoot a picture and place it into a printed or electronic document in less time than it takes a one-hour photo shop to develop the picture, then a digital camera is the way to go.

The Price of Image Quality

The QuickTake 150 and DC40 look different, offer slightly different controls and software, and provide different lens attachments. But the primary distinction between the two is the quality and quantity of the images. The QuickTake 150

is equipped with the same 1MB of flash EPROM memory as its predecessor, the QuickTake 100. But now you can shoot 16 screen-resolution (640-by-480-pixel) images, compared with a scant 8 in the past. The number of quarter-screen (320-by-240-pixel) images remains at 32. (You should avoid quarter-screen photos—one image contains 77,000 pixels, less than half the number used to print the yellow *F* at the beginning of this article.)

The DC40, by comparison, contains 4MB of RAM and holds up to 48 images. The resolution of each image is 756 by 504 pixels, which works out to about 25 percent more pixels than in a full-screen QuickTake image. (You can also take 99 low-resolution pictures.) The enhanced resolution helps the picture quality; and because the DC40 holds three times as many pictures, you don't have to download them to your computer as frequently. It's a good thing, too, because the DC40 takes roughly 6 times as long as the QuickTake 150 to transfer images. Plus, you have to convert DC40 images to PICT, JPEG, or TIFF formats in a separate operation, which takes several more minutes. The QuickTake ships with a special system extension that permits you to open or import the images using any program that supports the PICT format.

Consider the example of my wife, who tested both cameras by hauling them and a PowerBook 540c to the Denver Zoo. She shot enough pictures to fill both cameras twice. Using version 2.0.1 of the QuickTake Image Access software, she spent less than a minute downloading the 16 pictures from the QuickTake 150 to the PowerBook; using PhotoEnhancer 1.6, she spent more than 17 minutes transferring the 48 images from the DC40. Sitting on a bench at a public zoo for nearly 20 minutes with some bizarre technology in your lap making little *shik-ka shikka* noises while people gawk at you is not the kind of experience you envision when purchasing a digital camera. The next day, I spent a whopping 46 minutes converting both "rolls" of DC40 images to the JPEG format so I could open and color-correct them in Adobe Photoshop. The upshot? One DC40 image takes more than 10 times as long to get into a usable format as one QuickTake image.

Look and Feel

The other comparisons are less important, but they balance out in Kodak's favor. The Mac version of the QuickTake 150 ships with a control panel for mount-



Never Enough Pixels The QuickTake 150 takes up to 16 screen-size photos like the one at top. You can shoot three times as many photos at the higher resolution pictured at bottom with Kodak's DC40. These extra pixels come in handy, giving you that much more room to crop.

ing the camera like a disk on your desktop. You also get PhotoFlash, entry-level image-editing and -cataloging software. The DC40 includes PhotoEnhancer from PictureWorks, a company known for creating QuarkXPress extensions. PhotoEnhancer has fewer features than the QuickTake software, but it's cross-platform. If you own a Mac and a PC, you can use the DC40 with either machine without purchasing extra cables or software.

The QuickTake camera uses three AA batteries, which you can expect to last for about 200 pictures. It also offers a larger shutter-release button and more-convenient controls for setting the flash and the autotimer. The DC40 uses four AA cells that last for roughly 500 pictures. That extra battery goes a long way. But the controls are slightly harder to use, you must release the shutter with your right hand, and it's easier to delete all your pictures accidentally—all counts against it.

The DC40 includes a grip strap attached to the case, which prevents you from dropping your investment. You can purchase a \$79 leather grip for the QuickTake, but you have to take the grip off to fit the camera on a tripod. (The DC40 fits on a tripod with grip in tow.)

Normally, both cameras can focus on objects at least 4 feet away. The QuickTake 150 includes a plastic close-up lens that snaps onto the front of the camera. It scratches easily, but it permits you to

continues

New Version 3.0
Over 75
New Features!

Simple Scheduling Impressive Power.



"If you're looking
for a quick and easy
way to create
Gantt charts, this
program might be
just the one for you."

MacUser

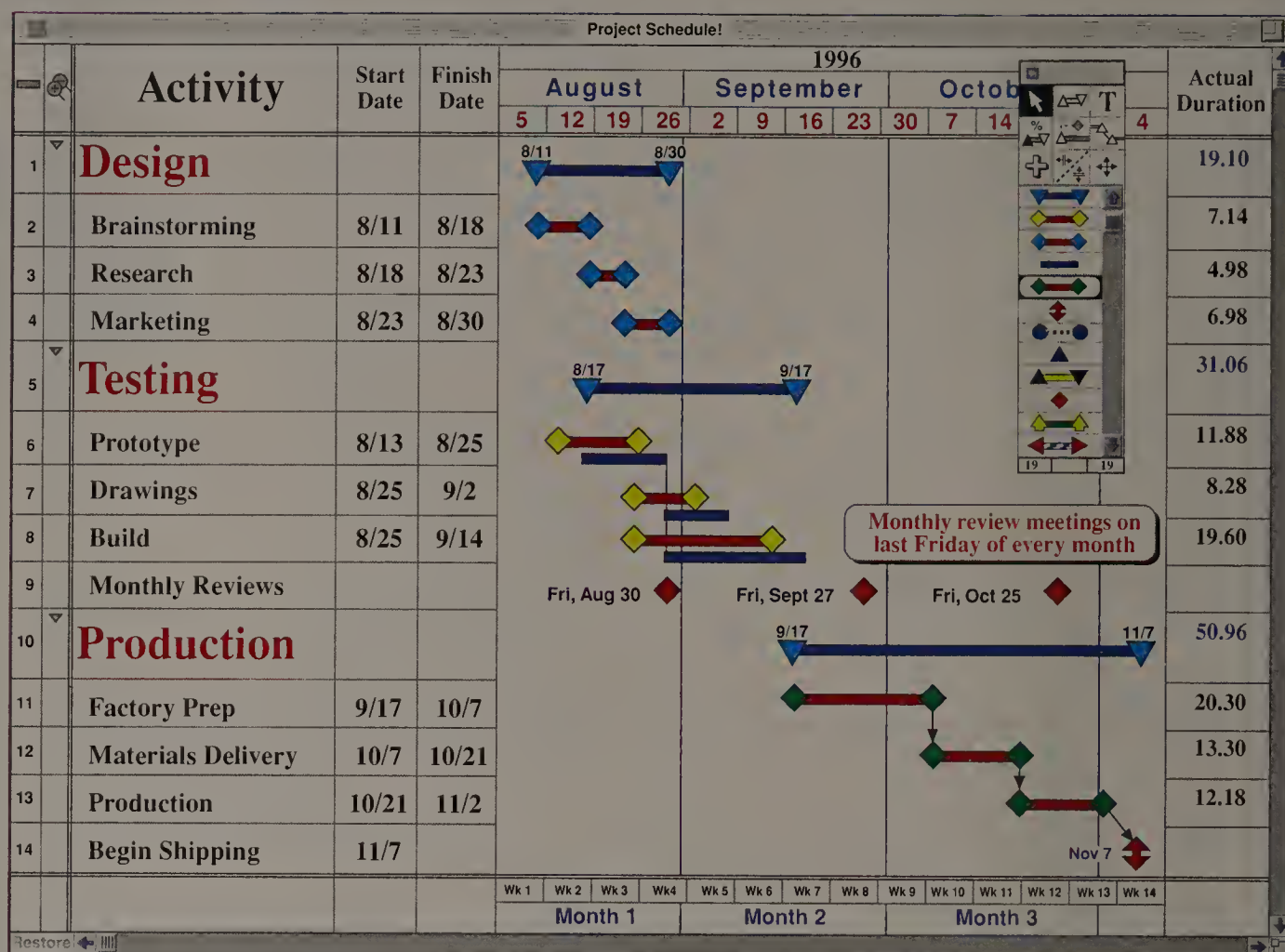
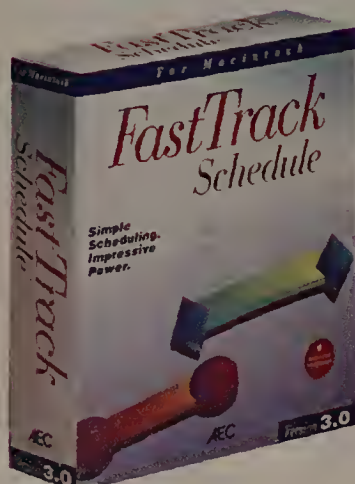


"...An excellent
choice for anyone
whose primary need
is to create precise,
presentation-quality
Gantt charts."

MacWEEK



Accelerated for
Power Macintosh



FastTrack Schedule™

No other scheduling tool is as easy-to-use or as powerful as FastTrack Schedule. There's no need for cumbersome project management packages, spreadsheets, or time-consuming drawing programs. Simply click and drag—or use your keyboard—to create presentation quality schedules in no time. And if you have questions, the extensive on-line help can assist, tutor, or remind you of every step.

Need more power? FastTrack Schedule can track scheduled, revised, and actual dates, calculate durations based on a custom work calendar, outline your projects, and link activities to show dependent tasks. Further enhance your schedules with custom bars and milestones, flexible timeline scales, and colorful graphics. And because FastTrack Schedule runs on Windows, Macintosh—and is accelerated for Power Macintosh—files built on one platform can be opened on the other.

To order, for more information or for a demo—Call Today!
1.800.450.1982

AEC
SOFTWARE

Circle 203 on reader service card

shoot pictures from as close as 8 to 14 inches. The DC40 is designed to accommodate special lenses with 37mm or 42mm threads. Kodak provided several kinds of lenses from filter vendor Tiffen to test with the camera. These included close-up, wide-angle, and fish-eye lenses, all of which worked predictably well. But you can't see the effect of a lens through the viewfinder of either camera—there aren't even alignment marks to help you frame the image. Because you need considerable experience to guess the result, this is quite a disadvantage for business users who lack the photographer's eye.

The Last Word

If I had to pick between these cameras, I would choose the Kodak DC40. The higher resolution, larger image capacity, longer battery life, and lens options weight the scales in its favor. But the QuickTake is easier to use, and you don't have to wait an interminable length of



Shooting Blind The Kodak DC40 accommodates 37mm lenses, like the wide-angle and close-up lenses demonstrated here. But the lenses don't affect the viewfinder; you have to do some serious guesswork. It's especially difficult to frame close-ups, because you and the camera see entirely different parts of the object.

time to download and convert the images. Still, before you purchase either camera, develop a couple of rolls of film to Photo CD. You're sure to prefer the results; the question is, can you endure the turnaround time? If not, you're in the market for a DC40.—DEKE McCLELLAND

Fargo FotoFun

Dye-Sublimation Printer

PROS: Inexpensive, nice output. **CONS:** Slow printing; expensive consumables and tech support. **COMPANY:** Fargo Electronics (612/941-9470). **COMPANY'S ESTIMATED PRICE:** \$399.95.



YOU'VE JUST FINISHED COMPOSITING your boss's head with the body of a controversial world leader and can't wait to show off your digital surgery. You could send it over the network to carefully selected colleagues—or you could make an even stronger impression: show them photo-quality output from the FotoFun, Fargo Electronics' tiny dye-sub printer.

With a resolution of 203 dpi, the FotoFun has a maximum output area of 4 by 6 inches (A6 size), slightly less if you want a 0.2-inch border around your prints. And setting up the printer is extremely easy—just install the ribbon, connect a serial cable to the CPU, set up the printer driver, and you're ready to go.

Impressive Output

Though 203 dpi might not sound impressive, the FotoFun's resolution—with its crisp edges and highlight and shadow details—is actually higher than that of some of its rivals, including the Nikon Coolprint. To protect output against ultraviolet fading, Fargo wisely added a coating it calls FotoShield.

Of course, you can't expect to get a good printout from a poor-quality image. A 4-by-6-inch 72-dpi image may look good on screen, but it will be pixelated when you print it, so forget about anything that's lower than 144 dpi. To give the FotoFun a thorough workout, I printed some images in a 4-by-6-inch format and showed them to my coworkers—all were amazed at the image quality. I also printed some images I downloaded from a BBS, as well as photos I took with the Kodak DC40 digital camera. Although these looked good, I did notice pixelization, especially in areas with small details.

Unlike its pricier competitors, the Coolprint and Sony's UP-D1500CN, the FotoFun doesn't have the luxury of a cassette tray—you have to feed in the paper one sheet at a time. The motor's distinctive hum alerts you that the FotoFun is ready to print. If more than 20 seconds elapse before you feed the paper, a dialog box appears asking you to retry or cancel. Although the printer sometimes refused

to retry, I was able to fix the problem by pressing the clear button on the printer's front panel and then pressing the return key on the keyboard. I also wasted a couple of sheets of paper by accidentally placing them glossy side up. Putting a label on the printer reminding you to feed the paper glossy side down would minimize such mistakes.

While the FotoFun blows away the competition when it comes to output, speed is another matter. Because it connects via the serial port rather than the SCSI port and outputs at a high resolution, the FotoFun prints at a leisurely pace. For example, on a Power Mac 7100/80, an image the FotoFun printed in about 4 minutes took slightly more than a minute on the Coolprint. And the FotoFun's reliance on the serial port can be a problem if you're already using both ports for, say, a modem and an AppleTalk network. In that case, a switchbox would eliminate the need for cable switching.

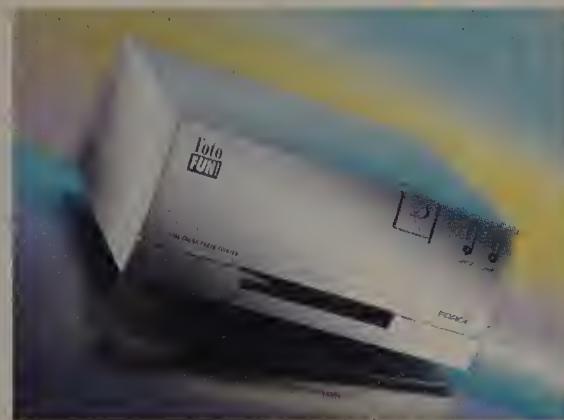
A Dollar a Page

Consumables for most dye-sub printers are pretty expensive, and the FotoFun is no exception. The Film Print Kit costs \$34.95 for 36 prints, or almost a dollar a page—still cheaper than using a Polaroid instant camera—while the Postcard Film Kit, for 36 prints with writable backside, is \$39.95. The most interesting consumable is the \$29.95 FotoMug Kit; it includes four mugs and a clamp to mount the print for the transfer process.

Then there's technical support. You get 30 days of free support beginning with your first call; after that, you pay \$10 a call. Fortunately, the printer is so straightforward that you probably won't need to shell out any money. And even though the manual and troubleshooting guide are rather sparse, they provide enough information to fix most problems.

The Last Word

The Fargo FotoFun easily outshines the Coolprint—for one-fifth the cost. Like its larger and more versatile siblings, the Pictura 310 and the Primera, the FotoFun is proof that a great printer doesn't have to cost a fortune.—MARK HURLLOW



ROBERT PERRY

IS THERE A SIMPLE SOLUTION ...FOR TODAY'S CAD USER

Take the Quiz !

Do You Need ...

- ✓ A proven market leader that handles any job; 2D, 3D, cost estimation and presentations
- ✓ A program tailored to your needs, with specialized tools for many design industries: A/E/C, mechanical engineering, landscape, space planning, food service, theater/lighting design, HVAC, and more
- ✓ A program that's easy to use, easy to buy and easy to customize to your specifications
- ✓ A cross platform program for both Macintosh and Windows systems
- ✓ A program from a stable company that stands behind its products with aggressive R&D
- ✓ A program with a RISK-FREE way to try it before you commit

Introducing

MiniCad 6 ... FULL-FEATURED CAD with INTEGRATED PROFESSIONAL SOLUTIONS



MINICAD 6: A COMPLETE CAD PACKAGE!

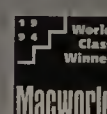
MiniCad 6 has just what you're looking for: complete 2D/3D drafting environment, powerful database and built-in macro language. A QuickTime™ 3D animation tool and QuickDraw™ 3D file support to add sizzle to your presentations. Even digital terrain modeling! All highly organized and very easy to use!

FREE DESIGN AND DRAFTING TOOLKIT™

Packed with thousands of symbols, tools, commands, templates, parametrics, formatted reports, worksheets and sample files targeted at specific industries. No extra symbol libraries to buy! These specialized feature sets are powerful, complete and already in MiniCad 6, giving you both design flexibility and targeted industry solutions for one low price.

INTERNATIONALLY RECOGNIZED

Now in its 10th year, Graphsoft's MiniCad is the best-selling CAD program for the Macintosh, utilized by design professionals in over 80 countries and 12 languages.



Diehl Graphsoft, Inc.
Graphsoft

A NASDAQ TRADED COMPANY

Makers of MiniCad 6, Blueprint and Azimuth for Macintosh. MiniCad 6 for Windows coming soon!

MACINTOSH WINDOWS

TRY IT RISK-FREE FOR 45 DAYS!

When you buy MiniCad 6 from a participating dealer, you'll get Graphsoft's no-hassle 45 day money back guarantee. You'll also get 18 months of free technical support, a 24 page quarterly newsletter and a multi-media CD that provides both Quicktime movies on the operation of each tool and command, and real working files from around the world.



For more information please contact Graphsoft at 10270 Old Columbia Road, Columbia MD 21046 **1-800-413-0935** or 410-290-5114 Fax: 410-290-8050. Marketing/ Sales: marketing@graphsoft.com In Canada call Paxar at 604-474-8975 For Academic pricing call 1-800-531-3227

QuickTime, QuickDraw and Macintosh are trademarks of Apple Computer. Windows is a trademark of Microsoft. MiniCad and Design and Drafting Toolkit are trademarks of Diehl Graphsoft Inc.

Circle 46 on reader service card

Arcserve for Macintosh 1.5

Backup Program

PROS: Users can back up to a remote tape drive; fast network performance. **CONS:** Clumsy installation requirements; doesn't display the size of your backup selection; doesn't back up properly to rotating backup sets. **COMPANY:** Cheyenne Software (516/484-5110). **LIST PRICE:** 5 users \$245; 20 users \$495.



FOR YEARS, DANTZ DEVELOPMENT's Retrospect Remote 2.1 has been the leading network-backup program for the Mac. The latest challenger hoping to topple Retrospect Remote (and its single-user version, Retrospect 2.1) is Cheyenne Software's Arcserve for Macintosh, but Arcserve needs to be refined to catch up with the leader.

To make the backup process easy, Arcserve lets you select the sources and destinations of your backups from a single window, which displays all disks, files, and folders in a familiar indented-list view, reminiscent of the Finder. Arcserve doesn't tell you the size of your selection, however, so you can't tell whether your backup will fit on the available backup media. To simplify the process for new users, Arcserve's Quick Script feature provides backup scripts that automatically set up all the steps needed to do full or incremental backups of your data.

Once you've installed Arcserve on a workstation, that workstation can initiate a backup by searching for any available tape drive over the network and choosing that drive as the backup destination. Retrospect requires a person to act as a central backup administrator, and it typically backs up to a designated Mac. Because it lets remote users initiate a backup, Arcserve is a good solution if your office has PowerBook users who need to back up only occasionally. Another Arcserve advantage is that Macintosh users on a mixed network can back up to a Novell NetWare server running Cheyenne's Arcserve for NetWare product, and ARCserve tapes from the PC and Mac computer platforms are interchangeable. According to Dantz, its cross-platform backup software has been delayed until the second quarter of 1996. Arcserve's backup scheduling is adequate, but it's much less flexible than Retrospect's. You can use Arcserve's Stealth extension to initiate unattended, sched-

uled backups, or you can trigger a backup using AppleScript.

Restoring from a backup is painless. The Quick File Access feature searches the index of a backup tape for files or folders, basing its search on user-defined criteria such as file or folder name or modification dates.

Arcserve 1.5 supports virtually all DAT (digital audiotape) and 8mm tape drives, including tape autochangers, and some DC600 units. It can also back up to disk media, such as SyQuest cartridges, magneto-optical drives, or hard drives. When backing up to disks, you can save your files in Finder format or as an Arcfile, which combines them into one large file.

Installation Woes

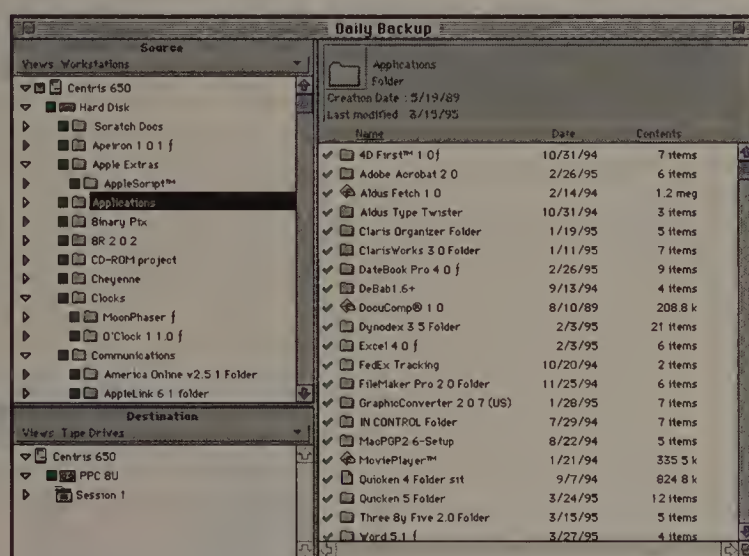
Installing Arcserve is an inflexible process. You can install Arcserve only on the start-up disk, and you must choose either the 680X0 or the Power Macintosh install; Arcserve cannot automatically install the proper version. You must install an extension and the Arcserve application (which take up 1.7MB) on every workstation; by contrast, Retro-

little-used Finder attribute—the backup date on each file and folder—to keep track of when files were last backed up. This means that if you have multiple backup sets you can easily—and unknowingly—end up with data that is not backed up. To understand the problem, imagine you have two backup tapes, Set A and Set B. You do a full backup to Set A on Monday. Arcserve sets the backup date for all files to Monday. You switch tapes and do a full backup to the blank Set B on Tuesday. Backup dates for all files are set to Tuesday. On Wednesday, you use Set A as the backup tape, and ARCserve incrementally backs up only files that have changed since *Tuesday*, not since Monday when you last used Set A. Arcserve does not copy the files that changed during the period from Monday to Tuesday into Set A, leaving Set A with an incomplete set of backed-up files. In contrast, Retrospect keeps an internal database of when files are backed up, so rotating backup sets work correctly.

Macworld Lab tests have shown that Arcserve backs up workstations over a network a bit faster than Retrospect Remote, but the Dantz product is faster at backing up large disks attached to a local machine—for example, when a tape drive is connected to a file server (see “Successful Workgroup Backup,” *Macworld*, May 1995).

The Last Word

Arcserve for Macintosh 1.5 is a good backup program for mixed-platform networks, especially if you're using Arcserve for Windows on a Novell network. For Mac-only networks, Arcserve handles transient users, such as a PowerBook-based sales force, better than Retrospect Remote 2.1. At Macworld Expo in August 1995, Dantz showed (but was not shipping) Retrospect Remote 3.0, which will have much-improved automation features for transient users. Even in the current version, for traditional workgroups with a file server and many workstations, Retrospect is better than Arcserve for centralized backup administration. And because it handles rotating backup sets correctly, it's better than Arcserve for in-depth backup protection.—TOM NEGRINO

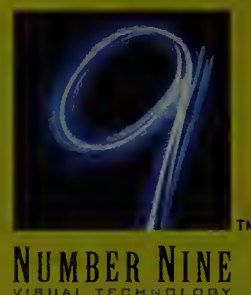


Correct Selection Arcserve lets you easily choose what you want to back up; just double-click on the square button next to a folder. The solid green buttons indicate that the entire contents of the folder or disk are selected.

spect Remote requires that you place a 47K extension on each workstation. Network administrators can't install or update Arcserve via the network; Retrospect administrators can. Arcserve defaults to no data verification, though it's easy to turn verification on. You can print or save backup reports, but you can't view them on screen.

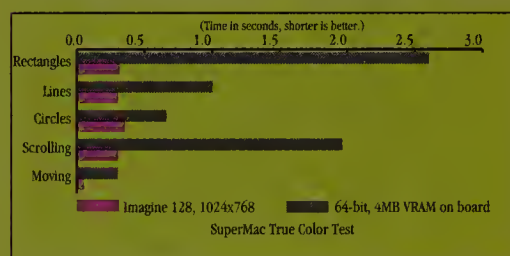
Arcserve's biggest flaw is that it does not back up correctly to rotating backup sets. The program takes advantage of a

128-bit Acceleration • 24-bit Color
1600x1200 Resolution • Starting at \$899*



OUR NEW 128-BIT GRAPHICS ACCELERATOR. IT'S PRIMAL SCREAM THERAPY FOR YOUR POWER MAC.

The Power Macintosh™ with PCI is here, and there's only one way to make it really scream. Introducing the Imagine™ 128 graphics accelerator. It's the only 128-bit board in the world. And it won't hold your Power Mac back like those puny 64-bit boards. That's because only the Imagine 128 gives you the power of 128-bit graphics, a 128-bit internal data path and a 128-bit memory bus. So you'll see



millions of colors at ultra-high resolution—up to 1600 x 1200 even on the largest monitors—
instantaneous screen redraw, real-time scrolling and zooming of true color
images. The bottom line: your
new Mac will
move like never
before. The

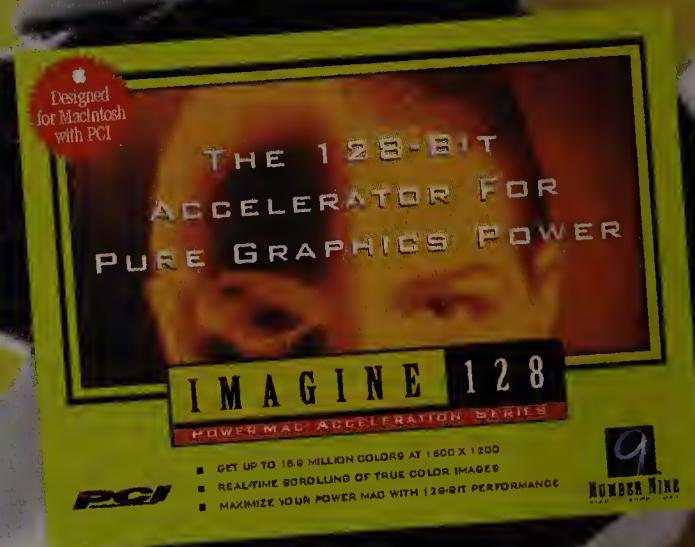
Imagine 128 Power Mac PCI is available with 4 or 8MB of high performance VRAM brought to you by Number Nine, a leader in high performance graphics accelerators. Call us for more info today. And see what all the yelling's about.

Make Your Power Mac Scream
Call 1-800-GET-NINE

Available At: **Mac Mall** (1-800-222-2808) Code: FT25B2
Computer City (1-800-THE-CITY)
CompUSA (1-800-COMP-USA)

*Estimated street price. Information is subject to change.
Imagine 128 and Number Nine are trademarks of Number Nine Visual Technology.
All other trademarks are property of their respective companies. ©1995 Number Nine Visual Technology Corporation.

PERFORMANCE RAISED TO THE POWER OF 9.



Radius Telecast

Nonlinear Editing System

PROS: High-quality audio and video I/O; support for multiple video standards; other professional video features; QuickTime-based. **CONS:** Immature editing software; audio-sync problems; relatively high price. **COMPANY:** Radius (408/541-6100). **LIST PRICE:** \$9995.



A COUPLE OF YEARS AGO, RADIUS delivered the first reliable, 60-field, full-screen, full-motion video-compression board for the Mac. Since then, the VideoVision Studio (VVS)—coupled with a hearty CPU and some fast hard drives—has become a staple in multimedia and video-production companies. Radius Telecast is a bold attempt to bring the ease and flexibility of QuickTime editing into the broadcast realm.

The Telecast's rack-mountable black box connects to the VideoVision compression board and is a sturdy piece of hardware loaded with professional features, such as inputs for component (RGB and YUV), composite, and S-Video; built-in PAL and SECAM encoding; four analog balanced audio inputs (and two digital inputs sampling at up to 48kHz), SMPTE and EBU time-code generation; genlock; and a GPI trigger for connectivity with other analog video devices such as special-effects generators. The Telecast's specifications, in fact, match or exceed those of some higher-priced Mac-based editing systems, namely Data Translation's Media 100 and Avid Technology's Media Composer.

In addition to Adobe Premiere, Telecast ships with Radius's own editing software, Radius Edit, a long-form meat-and-potatoes editor that lets the user cut quickly and spend a minimum of time waiting for images to render.

However, Radius Edit is still very



Radius Edit The software includes dual-monitor timeline editing to make QuickTime editing faster and more professional.

much a work in progress. Three years ago, its dual-window editor, batch clip logging, and timeline configuration would have been praiseworthy, but today these are standard features, and what stand out are Radius Edit's deficiencies. For example, working with full-screen video in the subsampled-source and record-preview windows is awkward because the application currently cannot resize the video on the fly to provide real-time playback in the trim mode. This slows down decision-making considerably, as the editor must toggle to full-screen mode to properly view clips.

Other features are poorly conceived. Split A/V editing is not well supported. Importing a still graphic is unnecessarily cumbersome, as you must convert the file to a QuickTime movie on import and then reimport it into the log list. Also, having a render track underneath the video track is redundant screen clutter. The QuickDraw GX Titler, while featuring keyframe animation, is limited to one text object per title, so you must create additional text objects as separate titles and layer them on separate video tracks.

But these criticisms of Radius Edit pale in comparison with problems I had maintaining audio sync, whether using Premiere or Edit. Regardless of the sync method I chose on input, I found that I could maintain audio sync playing back an individual clip (particularly using the Studio Player application), but edited material drifted several seconds. Radius admits this has been a recurring problem and says it is committed to correcting it.

The picture quality was impressive, easily competing with the Avid and Data Translation products at their higher resolutions. Using a Power Mac 8100/100 with 40MB of RAM and an 8GB ProMax Array, I digitized at a rate of up to 4MB per second without dropping frames (Radius currently recommends 2.5 MBps to 3.5 MBps).

The Last Word

Being QuickTime-based, instead of QuickTime-compatible, makes the Telecast a truly open environment. You can work on a project with various tools (CoSA's After Effects, Premiere, Edit) at variable screen resolutions, as well as at variable image-quality settings. Moreover, additional logging and rendering stations can be added using only the basic VideoVision Studio. Still, despite this enormous potential, serious video users should adopt a wait-and-see attitude. At its current price, the Telecast isn't a casual risk, and there are other competitively priced editing systems that are several steps ahead in the development process.—AVI HOFFER

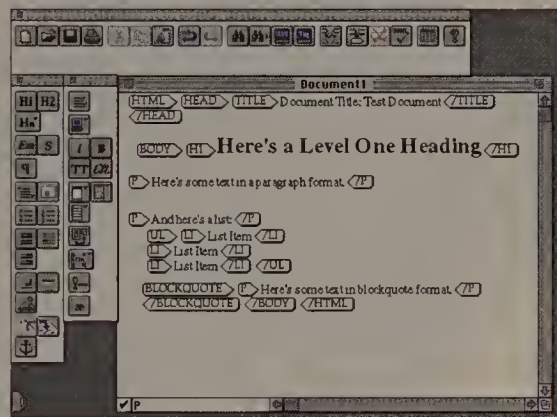
HoTMetaL Pro 2.0

Web Authoring Software

PROS: None. **CONS:** Poorly designed interface; unreliable import filters; heavy RAM requirements. **COMPANY:** SoftQuad (416/239-4801). **LIST PRICE:** \$195.



CREATING PAGES FOR THE WORLD Wide Web using HTML (HyperText Markup Language) is not difficult, but it's painstaking and error-prone. While you can use any text-editing application to write a Web page, entering the formatting tags by hand is a slow and laborious process. Web developers want an application that can make the creation of Web pages more like designing a page in QuarkXPress or PageMaker. SoftQuad's HoTMetaL Pro attempts to bridge the gap between simple text editors and WYSIWYG Web-page design software, but while its feature set sounds attractive, HoTMetaL doesn't deliver.



Unintuitive Interface HTML isn't the most straightforward means of design, but HoTMetaL Pro's confusing palettes don't make it any simpler.

When you open a new document with HoTMetaL Pro, you get a working area much like a word processor document, with space to enter your Web page text. Surrounding this window are floating palettes for adding the HTML formatting tags; HoTMetaL renders these tags as graphic elements. While easy access to tags is a good idea, HoTMetaL Pro's palettes are confusing and poorly designed. They consist of rows of cryptic buttons, and inexplicably large portions of the palettes are blank, as if buttons had been removed. Few buttons have keyboard equivalents (I spent far too much time using the mouse while creating pages), and those that do don't follow standard Mac interface guidelines. For instance, ⌘-B doesn't make text bold.

Experienced Web-page designers will

continues

Bringing back that great, fresh image has simply never been simpler.



It's no wonder that office equipment users around the world have turned to the Canon Cartridge, choosing cartridge-equipped laser beam printers, plain paper faxes, personal copiers and image filing systems. Because the Canon Cartridge contains not only fresh toner, but also a new drum, replacing the old cartridge with a new one restores the image you put on paper to the fresh, crisp quality you want. The all-in-one cartridge is simple to replace. It's totally self-contained, so your hands will stay clean as well. Plus, Canon has created a system that accepts used Canon Cartridges returned from around the world. Now, when you replace your Canon Cartridge, you not only get a fresh, clean image. You can, if you will lend a hand, also get a cleaner world.



All it takes is the all-in-one, user-replaceable Canon Cartridge.

For your home or office, choose any of the wide range of products that use Canon cartridges.



Laser Beam Printer
LBP-430W



Personal Copier
PC320



Electronic Filing System
Canofile 510



Fax Laser Class 7000

Cartridges returned via:



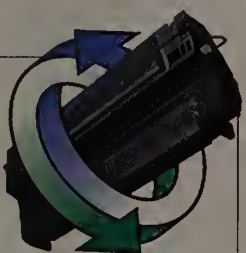
MAIL BOXES ETC.®

Call 1-800-962-2708 for details.

All registered trade marks belong to their respective holders.

CANON INC. 30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146, Japan. © 1995 Canon Inc.

As part of our Clean Earth Campaign in the United States, Canon supports leading environmental organizations. Used cartridges are returned under the Clean Earth Campaign via the United Parcel Service (UPS) or Mail Boxes Etc. Shipping costs are paid by Canon, so there's no charge to our customers. Easy shipping instructions can be found in the cartridge box.



Canon

be disappointed by the strange mix of HTML tags. If you're new to HTML, you'll just find them confusing. HoT-MetaL doesn't strictly follow the HTML 2.0 guidelines. For example, HoTMetaL Pro's validation filter accepts a few advanced tags, like those for rudimentary tables and some variations. However, the program avoids other advanced tags and will not allow you to use its validation filter to open pages that contain them. This is a strange discrepancy. HoT-MetaL Pro should either adhere to its HTML 2.0 standards or offer more advanced tags. As HTML updates come out, SoftQuad plans to offer free updates that incorporate the new standards as a software download from its Web site.

HoTMetaL Pro implements some of its features poorly. For example, if you open a preexisting Web page in HoT-MetaL Pro, the validation filter stops anytime it finds something it doesn't like and gives you a cryptic error message not explained anywhere in the manuals. If HoTMetaL Pro dislikes too many things in your document, it simply opens the page as a text file, leaving you to remove the offending tags by hand. When you have to clean up the imported HTML files, you've already done the filter's work.

HoTMetaL Pro takes an un-Mac-like approach to configuring preferences. You change preferences by typing arcane character strings into a thinly disguised configuration dialog box that feels left over from a command-line interface. In some cases, you must set preferences by opening the HoTMetaL Pro preferences file with a text editor and editing lines in the code. In a good Mac interface, these choices would be transparent to the user.

The PC version of HoTMetaL Pro gathered good reviews, but that may be because PC Web authoring applications have been so wretchedly bad that anything is an improvement. The Mac version is clearly just a quick translation of the PC product: screen redraws are often incomplete, windows fail to expand when the grow box is clicked, and dialog boxes contain strange DOS-like messages. Finally, I am appalled by the 8MB of free RAM required by the application, especially when similar shareware products require only 1MB to 2MB.

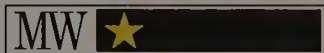
The Last Word

It's ultimately much harder to learn to navigate HoTMetaL Pro's confusing interface than it is to learn HTML. Web developers would be better off using shareware applications such as BBEdit or HTML Editor, whose features are simpler but better implemented on the Macintosh.—SARAH BEACH

Digital Fotovix IIIS-D

Video Slide Scanner

PROS: Can image small 3-D objects; can digitize any still-video input. **CONS:** Very poor image quality. **COMPANY:** Tamron Industries (516/484-8880). **LIST PRICE:** \$2299.



TAMRON'S FIRST VENTURE INTO the digital scanning market uses a built-in video camera to capture and digitize 35mm slides and small objects. The Digital Fotovix IIIS-D is identical to the earlier \$1149 Fotovix III-S, except that the III-S outputs only to analog video (for use with either an AV Mac or a video-digitizing board). The IIIS-D has a single 410,000-pixel CCD sensor—the kind used in quality consumer camcorders—and a competent digitizer. It can also digitize any video signal coming through a composite input (RCA phono jack) or a Y/C input (S-connector).

You can scan negative or positive film in color or black and white. A stand-alone image-capture program and a Photoshop acquire module are included, and both have some rough edges. Key buttons have odd labels; for example, the Full button actually means final scan.

What you get is a 480-dpi scan in 24-bit color, marred by noise and a lim-

ited dynamic range that turns dark areas into mud. Still-video images simply don't look good—you can't print the image bigger than a large postage stamp without seeing flaws. Such poor quality is acceptable for video, but the Fotovix digitizes only stationary images—it can't extract a single frame from a moving image.

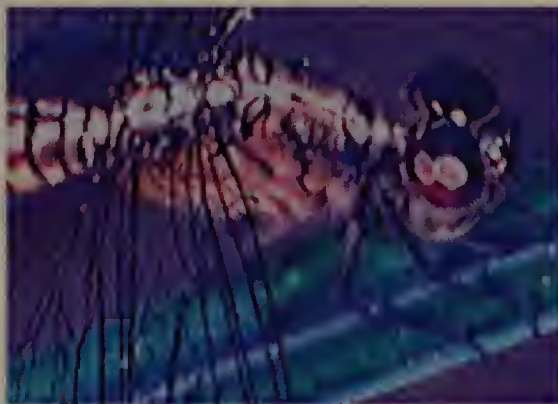
Although the Fotovix took only about 35 seconds to digitize a slide, I had to frequently adjust and rescan to get acceptable results. Two conventional slide scanners, the Polaroid SprintScan 35 and the Microtek ScanMaker 35t, scanned more slowly (at 600 dpi the SprintScan took about 40 seconds, and the ScanMaker, nearly four minutes) but with far better results at default settings. (For more on slide scanners, see "Slide-Scanner Spectrum," *Macworld*, December 1995.)

The Fotovix does have some features lacking in other slide scanners. Two analog output connectors supply composite and Y/C signals for display on television sets. The zoom lens can fill the frame with objects from 17mm to 36mm wide. By covering the slide stage with a metal cap, you can scan objects up to 5mm thick, as long as you don't care about detail. You have to supply lighting for objects; the Fotovix has a built-in backlight for slides. Construction quality runs the gamut from a sturdy frame to a zoom lens in a not-so-sturdy plastic housing to a downright flimsy slide holder. The SCSI connectors are the new thin, high-density type.

But who would find the Fotovix useful? Tamron could only suggest someone who might find poor quality an asset: a photographer cataloging commercial photographic collections or compiling proofs of all the photos taken at, say, a wedding. The photographer's clients could choose from a set of proofs whose low quality would offer no temptation to just keep the proofs instead of buying the photos. But anyone who needs such an "asset" could always degrade the images from a high-quality slide scanner; sadly, the Fotovix offers no such option.

The Last Word

I have a hard time imagining why anyone would want a scanner that's limited to still-video quality. For about the same street price, the SprintScan produces vastly superior images—at up to 2700 dpi—that look reasonably good printed at full-page size. And even the 1828-dpi ScanMaker 35t—at half the price—runs rings around the Fotovix in image quality. The Fotovix just doesn't measure up to the competition.—CARY LU



Comparing Scans A slide scanned at default color-balance settings and magnified to approximate a 5-by-7-inch print, by the Fotovix at 480 dpi (top) and the Polaroid SprintScan at 1350 dpi (bottom). Colors in the Polaroid scan match the original.



We all need an outlet to express ourselves.

{Even PowerBooks.}

Presenting the CruiseCard™ modem from Megahertz—the outlet every new PowerBook owner really needs. After all, the CruiseCard modem gives you the one-and-only XJACK® connector. Fax and communications software. Digital Line Guard. And the fastest available modem speed, 28.8Kbps. Best of all, the CruiseCard modem comes from Megahertz, the market leader in PC Card modems. In fact, we've shipped more PC Cards than anyone. (Now that's making a statement.) So give your PowerBook a CruiseCard modem.

And give yourself a little freedom of expression.

1-800-LINKING, ext. 4314. <http://www.xmission.com/~mhz>

That nifty XJACK® connector.

The most rugged connector that simply pops out to connect to any standard telephone cord, then locks back in for travel.

Wondering what to do with that little mystery slot on your new PowerBook?



Megahertz

Circle 56 on reader service card

Meeting Maker XP 3.1

Group Scheduling Program

PROS: Good scheduling capabilities; can synchronize schedules with PowerBook. **CONS:** Limited integration with Mac E-mail packages; no contact database; large sites report problems upgrading. **COMPANY:** On Technology (617/374-1400). **LIST PRICE:** System pack \$249; ten-user pack \$890.



MEETING MAKER XP IS A group scheduler that automates the process of setting up meetings and activities. The program uses a shared, networked calendar (with separate daily, weekly, and monthly windows) to coordinate meeting planning. Meeting Maker can also manage your to-do lists and personal activities. Version 3 lets you add proxies (people you authorize to schedule meetings for you) and designate holidays that appear on all calendars, and it gives administrators the ability to move users from one server to another. Also new is the ability to receive notification of meetings via E-mail, but this feature doesn't support QuickMail or the Internet-standard SMTP.

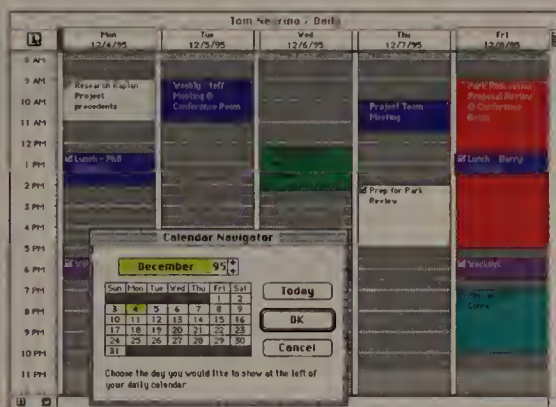
Meeting Maker uses a client-server system; up to 250 clients can log in to a server, and two or more servers can be connected via hubs. Small installations (25 users or fewer) only need a nondedicated server. Meeting Maker XP (XP means cross-platform) has client versions for Mac, Windows 3.1, DOS, Unix, and OS/2. Server versions exist for all platforms except DOS. The program runs under several network protocols, including AppleTalk, TCP/IP, Novell IPX, and NetBIOS. On Technology claims that Macs and other computers can coexist and share scheduling on the same network, but I did not test this.

The Meeting Maker interface is uncluttered and straightforward. You start by choosing Propose Meeting in the File menu (or by option-dragging on a block of time in the calendar). In a dialog box you enter the meeting title, the meeting location, and any needed equipment, and select the attendees from a single scrolling list. You can schedule a time, or the program can automatically select the first free time that everyone is available. After clicking on Send Proposal, you wait for the responses. All responses appear in the Messages window, with icons denoting whether the user has confirmed,

declined, or suggested rescheduling.

PowerBook users can update and synchronize both the PowerBook and server copies of the group schedule. Meeting Maker needs some form of contact database—for example, you should have the ability to look up addresses or phone numbers from within the program.

Because I was unable to use Meeting Maker in different-size environments, I spoke with users and system administrators at companies of various sizes. Administrators at large sites (more than 1000 users) reported adequate server performance but complained that Meeting Maker required an inordinate amount of maintenance time. These same sites reported that On Technology's tech support was inexperienced in dealing with large sites. However, at companies with fewer than 100 users (On Technology claims most Meeting Maker installations fall into this category), users and administrators expressed satisfaction with the program's performance. All the administrators complained about problems upgrading. For example, the scheduling database for version 3.0 is incompatible with previous versions, and the program cannot convert older files. Not only must administrators export the data and import it into the new version, but existing user preferences are lost and user-specified priorities on to-do items are changed. After the upgrade, some users were noti-



Time Blocks Meeting Maker's weekly calendar lets you label and color-code meetings and activities.

fied of recurring meetings that they had cancelled before the upgrade. Additionally, sites with servers connected by a hub lose all scheduling information.

The Last Word

Meeting Maker XP is a useful, robust package, well suited to small and midsize organizations. Large organizations, especially those with more than 1000 users, may choose to wait for a version with more new features and an easier upgrade path.—TOM NEGRINO

TV Adapters

Mac-to-TV Converters

Encoder Pro

PROS: Inexpensive for its class; excellent reliability and picture. **CONS:** Slight vertical cropping of Mac image. **COMPANY:** P2 Systems (206/525-2081). **LIST PRICE:** \$259.



Presenter TView

PROS: Excellent reliability and picture; useful software (optional). **CONS:** Expensive. **COMPANY:** TView (503/643-1662). **LIST PRICE:** \$449.



THE ENCODER PRO AND PRESENTER TView are among the latest generation of NTSC converters—boxes that turn the Mac's picture into a signal a TV or VCR can understand. Such boxes are ideal for PowerBook presenters, teachers, and QuickTime virtuosos who want to preserve their movies on videotape.

Converter designers face several challenges. There's a clarity problem: TV technology produces a far coarser image than computer-monitor electronics do. There's a flicker problem, which results from a difference in the way computers and TVs paint their screens. And there's the overscan problem, in which the edges of your Mac image (like the menu bar and Trash) get chopped off, since a TV's electron gun paints the glass beyond the visible edges of the TV screen.

Using clever electronics, these two new converters solve the flicker problem, creating a bright, stable Mac picture on your TV. Both do what they can to overcome the inferiority of a TV's picture tube, too. You still can't use a TV as a computer monitor—12-point type is barely legible—but presentation-style graphics (and large type) do splendidly. In my numerous trials, both boxes sent vivid, sharp Mac images to everything from home camcorders to national broadcast TV, no adjustments necessary.

Only the overscan problem remains. When you hook up either converter to your TV, about the top and bottom 1/4-inch of a standard 640-by-480-pixel Mac monitor's image gets chopped off. You can scroll vertically to favor the top or the bottom, but you can't fit the entire Mac image onto the TV screen. As long as you

continues

VISTA-S8 New Year's SPECIAL:

BUY THIS



*The award-winning UMAX Vista-S8 Scanner
with LE-2 Software Bundle for Mac or PC*

(Windows version shown)

GET THIS FREE



*\$ 495 value
Transparency Adapter*

Buy a Vista-S8 Scanner NOW and Get a \$495 Transparency Adapter FREE!

GREAT VALUE

The best value in hi-resolution graphic design, DTP and OCR scanning just got better! Buy an award-winning UMAX Vista-S8 today for \$ 799, and we'll give you a transparency adapter worth \$ 495 absolutely FREE!

GREAT PERFORMANCE

- ▶ **Single-Pass Design w/ Cold Cathode Technology**
- ▶ **Fast SCSI-II Interface for PC or Mac**
- ▶ **VistaScan® - Powerful, Single-Button Scanning**
- ▶ **Kodak Color Management for Accurate Color**
- ▶ **Windows '95 and PowerMac Accelerated**
- ▶ **6400 dpi Maximum Resolution**

Now Available At:



CALL US NOW TO FIND OUT WHERE YOU CAN GET IT!

**CALL (800) 331-8629
FOR MORE INFORMATION**

© 1995 UMAX Technologies, Inc. 3353 Gateway Blvd. Fremont, CA 94538. (510) 651-4000. Product Info Fax Back (510) 651-3710. UMAX is a registered trademark of UMAX Technologies, Inc. Offer good until Jan.31, 1996

Circle 196 on reader service card

anticipate this quirk (which affects almost all NTSC converters) when you prepare your presentation, it's a minor problem. In fact, owners of most older PowerBooks (such as the 100 series) won't notice anything amiss; their entire 640-by-400-pixel screen image will easily fit on a TV.

Even so, the TView offers a partial solution to the overscan problem: an optional system extension lets you redefine the dimensions of your Mac's screen (to, for example, 630 by 420). This trick works well when your presentation involves Mac programs. Unfortunately, it won't help any graphics or slides you've prepared at standard 640-by-480 size. They'll be too big to fit onto your redefined screen without scrolling.

The TView's other software goody is a control panel that, when you press certain keys, turns your cursor into a pointer, marker, or yellow highlighter.



Encoder Pro (bottom); Presenter TView (top).

Both boxes have two output jacks: an RCA connector for standard VCRs and TVs, and a jack for S-Video equipment (the more expensive, better-color format). Both work with a variety of Mac and PC models, although each requires an adapter for PowerBooks and some LC models. Both also let you plug in a 14-inch Mac monitor simultaneously with a TV (something cheaper models don't offer) and have buttons for freezing a frame or for squeezing the Mac image horizontally.

The Last Word

You can buy less expensive NTSC converters (see *The Desktop Critic*, January 1995). And more and more Macs have built-in NTSC-conversion circuitry, requiring no adapter at all. But the extra money for a converter buys worthwhile features. The Encoder is a good value at \$259; \$190 more buys the TView's useful software gadgets and a superbly written and illustrated manual. Either way, you get a bright, rock-solid display that may be the closest you can come to seeing Mac-monitor picture quality on an old-fashioned TV.—DAVID POGUE

SoftBoard Model 205

Electronic Whiteboard

PROS: Easy to set up; displays writing at remote sites. **CONS:** Expensive; requires special marking pens and erasers. **COMPANY:** Microfield Graphics (503/626-9393). **LIST PRICE:** \$2795.



METALLIC WHITEBOARDS ARE great for lectures and conferences: they're durable, they work with cheap erasable markers, and they don't emit a horrible screeching sound when you drag your fingernails across them. But conventional whiteboards aren't much help if you need to maintain accurate records or distribute copies of everything you've written. That's the idea behind the SoftBoard, an electronic whiteboard that captures everything you write and sends it to your Mac.

The SoftBoard comes in three different sizes. For this review, I looked at the low-end Model 205, which measures about 40 inches on a side and sports a 26-by-34-inch writing surface. It comes with wall-mounting hardware, but you can hang it from a standard office partition or rest it on a table using separate \$99 kits.

To use a SoftBoard you need, at minimum, a Macintosh with a 25MHz 68030 processor, 4MB of available RAM, and System 7 or later. The SoftBoard connects to the host Mac's serial port with a supplied 12-foot cable. (Although it's not recommended, I've used a SoftBoard with a 90-foot cable without problems.)

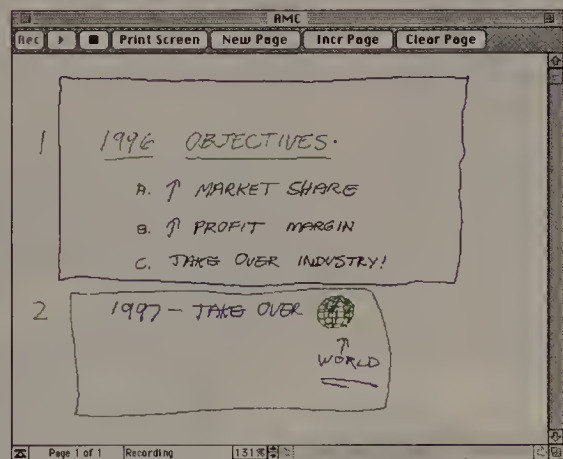
The SoftBoard uses twin infrared lasers to determine the color and position of the pen you're writing with. Once you've connected the hardware, you calibrate the lasers using a diagnostic program, a procedure that takes less than ten minutes. The SoftBoard works only with markers that incorporate a coded reflective collar at their tip. (The board comes with two sets of black, red, blue, and yellow pens; additional sets sell for about \$10 each.) You must erase using a special round eraser that's included with the SoftBoard. Because the lasers can't locate more than one pen or eraser at any given moment, only one person at a time can write on the SoftBoard.

An application called SBRecord sends everything that's written on the SoftBoard to the Macintosh screen. (An almost identical program called SBRemote also lets you display SoftBoard activity at remote locations over a network or modem—handy for teleconferencing.) You can scale

the viewing area to take advantage of large monitors, and you can customize the display color and stroke width of each of the SoftBoard's four marking pens. You can capture anything that appears on the Mac's screen in a PICT file or in a special file format that preserves every pen and eraser stroke. If you prefer, have the program automatically save at specified intervals or whenever the SoftBoard is idle. The board also comes with a free-ware application called SBView that lets anyone with a Mac or an IBM-compatible PC review SoftBoard documents.

If you have more than one topic to discuss, you can assign each one to a separate page by clicking on controls at the top of the SBRecord window on the Mac screen. Other controls in the program let you jump from page to page or replay all of the pen strokes from any page in order. The program also lets you start a new page or print the current page by tapping the pen on a magnetic strip that you can place in any corner of the SoftBoard.

In day-to-day use, the SoftBoard does its job with a minimum of fuss. You do have to be careful not to write too quickly, and the SoftBoard works best when you hold the pen at a right angle to the surface. Microfield's documentation, which comes in the form of separate installation and software reference manuals, is stiffly worded; and the installation guide lacks an index—I'd prefer a single



Virtual Whiteboard Pen and eraser strokes on the SoftBoard appear on the Macintosh's monitor in real time.

comprehensive manual. However, technical support is toll-free, and the people I spoke with were uniformly friendly and helpful.

The Last Word

The SoftBoard is a specialized tool, and while it's expensive, it does exactly what it promises. Only you can tell whether your needs make it worth the asking price.—FRANKLIN TESSLER



The new face of scanning

Brilliant scans. Negative or positive. Under a minute. Under \$2,000.

SprintScan 35 lets you perfect the image yourself, right on your desktop. Just drop in the slide or negative strip, point and click. 30 seconds later you have an image that's as good as your original. • Ideal for 4-color separation output as well as F.P.O. work, the SprintScan 35 captures 10 bits of color (RGB) at a dynamic range up to 3.D. • To get the whole colorful story, call 1-800-816-2611, ext. 965, today.



Scanned at
2700 dpi in 30 seconds
Photo by Phillip Porcella



Polaroid
Electronic
Systems **Imaging**

Circle 295 on reader service card

Links Pro CD

Golf-Simulation Game

PROS: Excellent simulation of golf's many challenges; terrific graphics. **CONS:** Could use more detailed hole diagrams. **COMPANY:** Access Software (801/359-2900). **LIST PRICE:** \$69.95.



GOLF IS A SPORT THAT TRANSLATES well to computer simulation—no teammates to pass to, no opponent to throw you a curve, just you and the course. I've played the digital-golf circuit over the years, on a variety of computer platforms, and Links Pro CD is the best golf simulation I've seen.

Links Pro deftly incorporates the innumerable variables that make golf challenging, presenting them in an understandable and playable format. You can golf alone, with up to seven other players (in person, or over a network), or choose partners from a roster of recorded players.

The disk version comes with Harbour Town Golf Links of Hilton Head, South Carolina; the CD-ROM version adds Banff Springs Golf Club, in Alberta, Canada, including hole flyovers for both courses. Nine optional courses are available for

\$29.95 each, including Firestone in Ohio and Pinehurst in North Carolina; a tenth, Pebble Beach in California, goes for \$39.95.

The game features terrific graphics, with good close-up detail and wonderful panoramas. And Links Pro provides complete 3-D models of the actual course, not just a series of disconnected holes. You can turn around and drive a ball sideways to another hole, play a hole back from green to tee, even bounce shots off the clubhouse—it's like really being there.

A control panel displays yardage, wind, and club information. You can choose preset shot types, such as draws, fades, and chips, or you can alter shot variables, such as stance, ball position, and swing plane, to create special shots—just like Seve Ballesteros and Corey Pavin.

To swing the club you use the mouse—press, release, and click on a gauge that registers the shot's power and the accuracy of your timing. Clicking right on the impact marker equals solidly striking the ball.

Putting is also well simulated. Unlike games that shift to 2-D view for putting, Links Pro sets you right on the green. A grid helps you read the contours, but you must pay attention to detail and stay focused over the shot—just like in real golf.

To enhance realism, Links Pro includes ambient sounds, birds chirping, and verbal comments. But the CD's recorded comments



Nothing Could Be Finer Lining up an approach on the 18th at Harbour Town Golf Links, with the famous lighthouse in the background.

by comedian Bobcat Goldthwait can get annoying fast, even to fans. Much better are the extensive statistics the program generates. Some are so interesting I've added them to my database of personal on-course stats.

The program lets you measure line-of-sight distances with the shot-aiming stick, and the aerial view of the overall course is fine, but I'd like diagrams that would help me figure distances to bunkers, water, and obscured hazards. And I'm sure many would welcome the addition of a preset punch-shot option to negotiate those low shots.

The Last Word Links Pro is a great golf simulation. It's accessible to novices but sufficiently challenging to keep golfing veterans entertained. In fact, some golfers will find it as addictive as the real thing.

—CARLOS DOMINGO MARTINEZ

Full Throttle

Graphic Adventure Game

PROS: Wittily written; wonderfully cinematic; clever interface. **CONS:** Puzzles are not especially difficult; graphics are somewhat blocky. **COMPANY:** LucasArts (415/472-3400). **COMPANY'S ESTIMATED PRICE:** \$49.95.



YOU ARE BEN, A BAD-TO-the-bone biker and leader of the Polecats gang, in LucasArts' new game, Full Throttle. One day you meet Malcolm Corley, aging founder of the legendary Corley Motors, the last domestic motorcycle manufacturer. Before long, you're konked on the head, your bike's been trashed, your gang is in jail, and you've been framed for Corley's murder. You know the real culprit is Adrian Ripburger, a scheming, backstabbing Corley executive who wants to take over Corley Motors and make . . . minivans (*ugh!*). To clear your name and save Corley Motors, you have to solve the game's many puzzles.

Full Throttle is presented like a movie, complete with long tracking shots, appropriate

sound effects, and terrific animated sequences. The music is good, a hard-driving rock soundtrack (by "a real biker band!" says the packaging). The script (and Ben's voice-over narration) is written in a style best described as tongue-in-cheek tough guy—it's very funny. Thanks to excellent voice acting, the other characters in the game are well realized, from the slimy Ripburger to Corley's scrappy daughter, Maureen, to Horace the souvenir seller.

There's a refreshing lack of visible interface; when you need to operate on an object, you point at it and hold the mouse button down, and the interface appears. You can then examine, touch, or kick an object, or talk to another character. Inventory is handled in a similarly unobtrusive way.

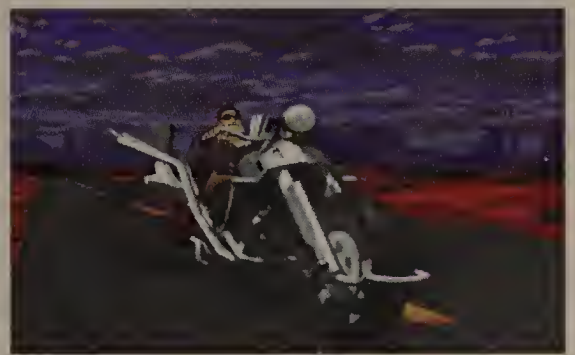
Especially enjoyable is not dying and being presented with "Game Over" when you do something wrong. If you get knocked off your bike, you see a brief scene of Ben lying on the ground, then you're back on the road. Toward the end of the game, when you need to save yourself and your friends from plunging to a fiery death, if you hear Ben mutter, "Ouch! Let's try that again," you're brought back to the beginning of the scene. And here's a tip: when you finish the game, make sure you watch all the credits.

Full Throttle requires System 7.1 or later, a 68040 or PowerPC processor, a dou-

ble-speed or faster CD-ROM, and at least 8MB of RAM. On my Power Mac with a quad-speed CD-ROM drive, the pace of game play was more than adequate. Hardcore gamers may find Full Throttle too easily solved, as the puzzles aren't terribly difficult. I completed the game over a few days. The graphics (especially backgrounds) are quite good, but the rendering quality could be better, and images often look jaggy.

The Last Word I greatly enjoyed this game. It hits just the right balance of action, intelligence, and humor. If you're bored with mindless shoot-'em-ups, and your sense of humor and irony are intact, definitely check out Full Throttle.

—TOM NEGRINO



Leader of the Pack There's nothing like the feeling of the wind in your hair and the bugs in your teeth. Ben's riding high now, but in just a moment he'll be flat on his back with a wrecked bike and more trouble than he can handle.

HOT POINTS.

Your fingers, after all, are the ultimate pointing device. So instead of rolling around a mouse or track-ball, now you can just glide your finger over the new

Alps Desktop GlidePoint® for perfect cursor control.

Like the smaller Portable GlidePoint, all you do is tap the Desktop GlidePoint lightly to "click," or press

one of the three programmable buttons. But the hot new Desktop GlidePoint is designed specifically for Macintosh® or PC *desktop* use, with more surface area

and larger buttons for easier control.

And with all the moving parts in your fingers, there's nothing to get gunked up or need constant cleaning.



On its base, the Desktop GlidePoint tilts to any one of four positions to fit your working style perfectly.



The Desktop GlidePoint works on or off its base. The base is weighted to stay put, and adjusts to exactly the height and angle you like

best. Fine tune it for a perfect fit by pivoting to one of four positions. Or use it flat on the desktop. Either way, the Desktop GlidePoint

conserves desktop space and never strays like a mouse.

For more information about the new Alps Desktop GlidePoint, Alps Portable

GlidePoint, and Alps' full line of GlidePoint and other peripheral products, or for a reseller near you, call 1-800-720-ALPS (2577).

ALPS GLIDEPOINT® 

King's Quest VII: The Princeless Bride

Adventure Game

PROS: Engaging action; colorful animation with well-rendered backgrounds; self-reliant female characters. **CONS:** Plot is too silly for adults, while play is too plodding for youngsters. **COMPANY:** Sierra On-Line (206/649-9800). **LIST PRICE:** \$59.95.



THIS GAME HAS AN IDENTITY PROBLEM. Its colorful animation seems designed to reform those little girls who, despite an enlightened upbringing, dismay their parents by yearning for Barbie dolls. Yet the game's unhurried pace, requiring repeated visits to locations to discover clues and acquire useful objects, is better suited to young adults. If you're old enough to enjoy the game—at times very entertaining—you'll probably smirk at the frilly plot, which reminded me of vintage Smurfs.

The lead character is a yellow-haired valley girl of a princess who introduces herself by singing a little ditty saccharine enough to make Barney the dinosaur purse his purple lips. Pressured on the subject of marriage by her mother, the queen, the

princess hops into a pond and discovers a world inhabited by trolls, a fiendish sorceress, and a handsome, though hooded, prince. In the role of either the princess or the queen, you attempt to save the world and reunite with either your mother or daughter, depending. It's a perfect recipe for entertaining little girls.

But the action in King's Quest is far too plodding for most little girls. They're virtually guaranteed to start squirming and complaining mere seconds into the game. I've had the pleasure of playing the game separately with one seven-year-old and one nine-year-old, and both harbor vivid memories of the queen laboring across the screen at the speed of spilled oatmeal. Most characters take more than a minute to cover the grand length of 640 pixels, so consider having some coloring books or finger puppets nearby to entertain the kiddies.

The animation in previous volumes of King's Quest has been compared with Disney's, but though Quest VII's backgrounds are well executed and the use of color is reminiscent of Disney classics, each scene is seen from a single all-encompassing camera angle—most un-Disney-like. The ability to examine the items by picking them up and twirling them around in three-dimen-

sional space is a nice touch. But the characters are crudely executed and flat.

The Last Word King's Quest VII offers two endings, with differing consequences for the prince. As either queen or princess, you have lots of opportunity to die, but you can usually immediately recover to where you left off. The music is a bit grating, and the documentation fails to warn you that all heck breaks loose if you don't switch to 256 on-screen colors. But if none of this bothers you, then King's Quest VII serves up hours of fun. And despite the title, don't look around for a king; the women struggle to save themselves without male rescuers—a welcome break from standard fantasy role-playing fare.—DEKE MCCLELLAND



Just What Are You Doing to My Daughter?

No mother likes to see her daughter zapped by a sorceress, but this sorceress, having already laid out the prince, is in a zappin' mood.

AmoebArena 1.0

Strategy Game

PROS: Engaging and easy to play; lets users create custom scenarios. **CONS:** No network play; must play from CD. **COMPANY:** Casady & Greene (408/484-9228). **LIST PRICE:** \$49.95.



START WITH A FUTURISTIC VERSION of Chinese checkers invented in a biohazard lab, add just a dash of the cantina scene from *Star Wars*, and you'll get a pretty good idea of what AmoebArena is all about. This strategy game's concept is simple: pit your army of microscopic organisms against your opponents' microscopic armies in a free-for-all arena battle. Imagine the game of Risk invented by a mad cellular biologist.

Your armies are made up of four types of single-cell soldiers: cytozoids, amoeboids, mitoplasts, and blockers. Each type varies in terms of movement, attack power, health, and ability to reproduce. You start the game with a set number of each organism, which you place in your corner, or "home area," of the board. Your opponents do the same, and then it's a cytoplasmic slugfest as you

pilot your pieces in the arena according to their movement allowances, attacking and defending. The winner is the player with pieces left on the board at the end of the battle. It took me less than five minutes to get started playing, but I'm still nowhere near mastering the strategies it takes to win.

There are three scenarios from which to choose: a quick, basic game or two more-protracted tournament games. Tournament games cycle players through changing game boards as you fight for control over your opponents' star systems. Win control over them all (or hold the majority in limited-round tournaments) and you get to take a victory lap around the AmoebArena starship. In the more complex scenarios, the board and the composition of your pieces change between battles, and so does the

strategy. Five computer opponents are available, each with a different style of play. It's also possible to compete against human opponents, but because the human players have to share the same computer (no network play is available), it's essentially a one-person game. If you are shopping for a game to play with your friends, choose another.

Surrounding the game board are windows that contain animated portraits of you and your opponents. I found a cheesy sci-fi charm to these graphics and the background data on each player, but they won't be to everyone's taste. The windows come to life as you or your opponents react to the fortunes (good and bad) of microscopic combat. These prefab personalities, intended to add flavor to the game, are only moderately successful. But I loved the way my animated cell warriors oozed across the board, accompanied by a disgusting sucking sound.

The Last Word My only real complaints about AmoebArena are that there's no network option and that you must play it from the CD. This is a simple game, and the movie files that come with it aren't essential. I would have liked to run it from my PowerBook, but there was no option to play without those files. In the end, though, these are minor quibbles. AmoebArena is an engaging game that's easy to learn but doesn't lose its slimy charms after just a few games.—MATTHEW HAWN



My Amoeboid Can Beat Up Your Cytozoid

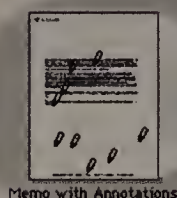
The AmoebArena game board, complete with single-cell warriors (ebola not included).

New PaperPort Vx.

Accelerated for
Power Macintosh

INCLUDES
\$249 WORTH
OF FREE
SOFTWARE!

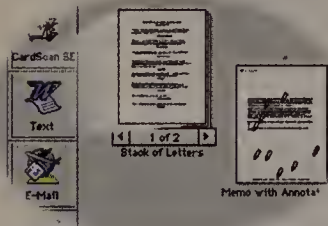
The easiest way to get paper into your Mac.



Memo with Annotations

Organize everything easily.

Mark-up your documents, then drag them to and from folders on your hard disk. Instantly find whatever you need with our powerful search tools.



Copy, fax, and edit—at your fingertips.

Just drag and drop your document to your fax, e-mail, word processors, printers—and more. You'll never again have to babysit the fax machine or wait in line for the copier.

With Visioneer's new PaperPort Vx, you can get paper into your Mac in as little as two seconds—and put it to work with unmatched simplicity and speed.

Get paper in fast.

Just feed *any* piece of paper (up to 8.5" wide and 30" long)—a letter, photo, newsclip, receipt, business card—into PaperPort Vx. In seconds, it appears on your screen. Crisp and clear. Easy to read. And ready to be faxed or e-mailed, edited or copied, printed or filed with incredible ease.

Put it to work—instantly.

PaperPort Vx has direct links to hundreds of the most popular software applications, so you can automatically integrate paper into the applications you use everyday—your fax, on-line service, word processor, contact manager, spreadsheet, and many more.

Do even more with \$249 worth of free software.

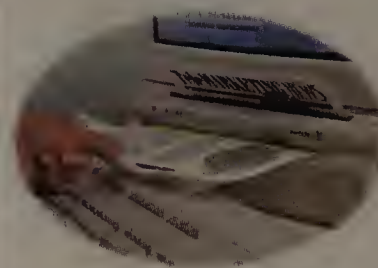
PaperPort Vx includes the latest OmniPage LITE™ OCR software to transform scanned paper into editable

text; Corex CardScan SE™ to automatically turn your pile of business cards into an electronic card-file of contacts; and PictureWorks Copier™ to turn your computer and printer into an instant copy machine—with powerful features to resize your image and put multiple items (like receipts and business cards) on a single page.

Superior readability, superior results.

Only PaperPort Vx gives you exclusive SharpPage™ technology. So you get crisper scanned text—and your fax recipients get extremely legible pages, with no unreadable black blotches. And with up to 256 shades of gray, PaperPort Vx accurately captures your snapshots and graphics—even magazine pages.

So, instead of running papers around your office, use PaperPort Vx to zip them into your Mac where you can put them to work. To find out more, call us at 1-800-787-7007, Ext. 601, or see your local dealer.



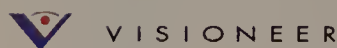
Super-small, super convenient.

PaperPort Vx fits between your keyboard and monitor, and installation couldn't be easier. Just plug it into your modem or printer port.

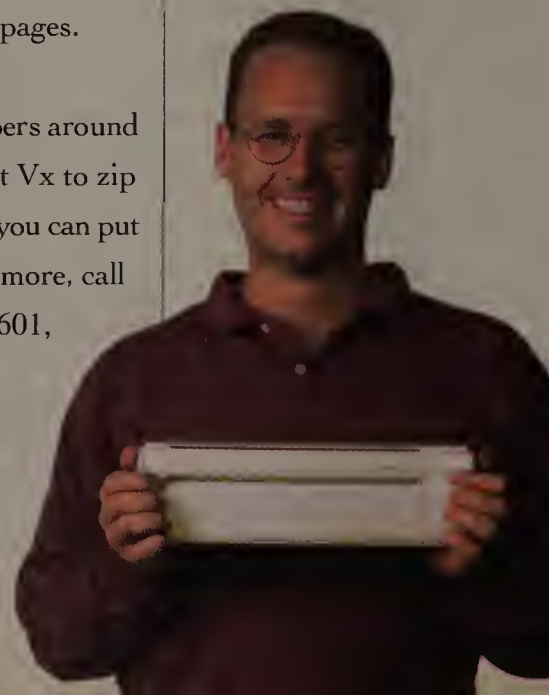


Award-winning.

PaperPort has won the most prestigious awards for its usability and design.



PAPERPORT V_x



The Legend of Kyrandia, Book 3

Adventure Game

PROS: Good story, soundtrack, and three-dimensional renderings; plenty of puzzles and action. **CONS:** Low screen resolution; action can be labored and repetitive. **COMPANY:** Virgin Interactive Entertainment (714/833-1999).

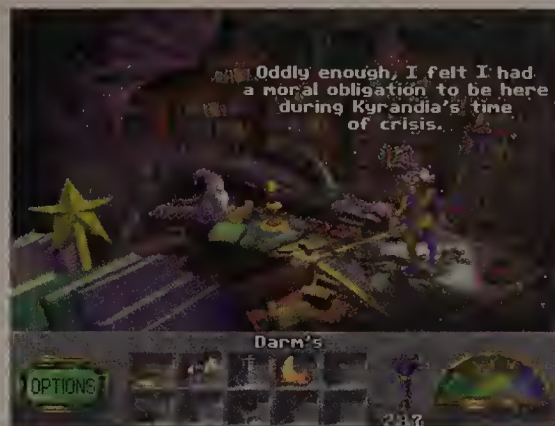
COMPANY'S ESTIMATED PRICE: \$34.95.



WITH EACH NEW LEGEND OF Kyrandia game, the story continues but the perspective changes. In the first game you play Prince Brandon, a virtuous sop whose parents were slain by an evil court jester named Malcolm. With the help of an alchemist named Zanthia, you turn the good-for-squat Malcolm into stone. In the second game, you become Zanthia and once again save the kingdom of Kyrandia. Then along comes the third adventure, Malcolm's Revenge, in which everything learned earlier turns out to be hogwash. You play Malcolm, brought back to life by a freak bolt of lightning. And wouldn't you just know it, you were framed! You didn't kill Brandon's parents. Okay, so you're sarcastic and malevolent. But a murderer? Never.

The basic action is standard adventure-game fare. You wander around searching for stuff, adding stuff to your inventory, and trying to use the stuff in a way that gets you out of your current predicament. The screen resolution is just 320 by 240 pixels—partially the result of the game's being ported from DOS—and some puzzles are plain impossible to figure out. (Who among us would think to blow up a brick wall using sesame seeds fertilized by an eel?) The game can likewise be unforgiving, and the action is peppered with repetitive tasks.

Luckily, Malcolm's Revenge provides enough pleasant diversions to make the game ultimately enjoyable and engaging. The story line is good, slowly unraveling the mystery of just who did kill Brandon's folks as you engage in your various acts of high adventure, such as aiding some cats in a revolution against a tyrannical dog empire and saving Kyrandia from certain enslavement at the hands of some equally tyrannical pirates. The game awards you points and praise when you show off your ornery side by destroying public works and even randomly poking people with sharp objects. (Notoriously malicious jesters like yourself have an image to maintain.) And occasionally you come across glimpses of gaming



The Magical Sliding Inventory Bar To maximize screen real estate, the area at the bottom of the screen slides up when you need to access your stuff, and then slides back down when you want to interact with characters.

flexibility. There are six different ways to escape the first scenario, and you can elect to follow your good conscience, bad conscience, or both in the fifth scenario.

The Last Word Malcolm's Revenge isn't nearly as humorous as LucasArts' Monkey Island, but it offers a complete and well-scored soundtrack as well as three-dimensional animated transitions. Though Malcolm is hardly a role model, the game is perfectly suitable for kids (even one goofy death scene). And thanks to the complexity of the game and the number of variations, you're looking at a week or more of game playing.—DEKE MCCLELLAND

Out of the Sun

Flight-Simulation Game

PROS: Historically accurate battle scenarios; wide selection of aircraft; shows related ground forces. **CONS:** Limited flight dynamics; unrealistic scenery rendering; incomplete documentation.

COMPANY: Domark Software (415/513-8929).

COMPANY'S ESTIMATED PRICE: \$44.95.



FLIGHT SIMULATORS SEEM to fall into two categories: jet-powered shoot-'em-ups with miraculous capabilities that can save the day in any situation, and more realistic seat-of-the-pants simulations that require real aviation skills and tactical knowledge. Domark's Out of the Sun is in the latter category, putting you in authentic World War II fighters and bombers, fighting historically accurate adversaries.

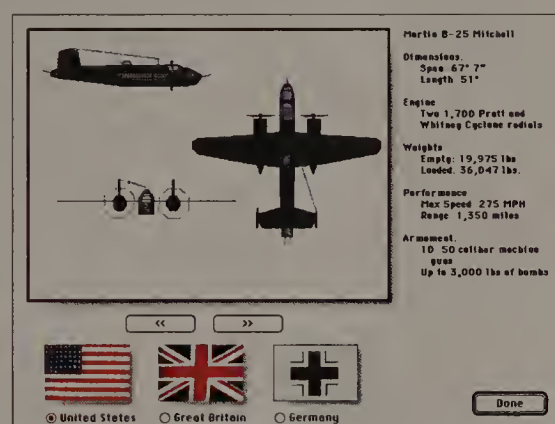
The simulation comes on CD-ROM, and you can run it directly from the disc or install it in about 20MB on your hard drive. The well-written manual includes a quick-start section, as well as detailed instructions and background information. The game opens with an overview of three theaters:

Midway, D-Day, and Kursk. You choose one and then select a battle from headlines in a World War II-era newspaper facsimile; the newspaper's articles give you background information on your particular engagement. Finally, you select the country you're fighting for (the United States, Britain, Germany, or Japan) and the aircraft you want to fly.

The simulation then puts you in the midst of the battle. Depending on the scenario, you may be in a midair formation with enemy aircraft in your sights, or on a runway trying to take off while attackers bomb the airfield. All sorts of battlefield effects add realism: machine-gun tracers cut the sky around you, armored surface forces move and shoot back, fires erupt on the ground, and destroyed aircraft and buildings shower bits and pieces everywhere. Everything makes noise, and you can make the cacophony authentically deafening with the help of a good external sound system.

The simulation has a total of 18 battle scenarios, including both land and sea engagements. But you're not limited to the preprogrammed battles. A battle-design panel lets you create your own situations.

Each cockpit is sparsely but realistically rendered, with just the basics of altimeter, airspeed, compass, and engine controls. The actual flight simulation itself, however, is not as refined as some other period



Background Information Out of the Sun includes detailed specifications on the aircraft you fly and those you fly against, as well as extensive briefings for each battle scenario.

simulators, such as Graphic Simulations' Hellcats Over the Pacific. Even on a Power Mac 8100/100, the 3-D view has a choppy feel. The flight dynamics of different aircraft vary only slightly, and scenery is rendered as large polygons. And while the program supports flight controls such as the MouseStick and ThrustMaster, the documentation says nothing about how control buttons are assigned, leaving you to puzzle out the controls by trial and error.

The Last Word While other Mac simulations offer more realistic landscapes, Out of the Sun's historical accuracy is refreshing. Out of the Sun is fun, engrossing, and completely enjoyable.—MEL BECKMAN

WHAT COULD YOU DO WITH A LASER PRINTER THAT

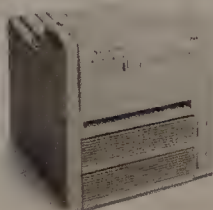


Adobe PostScript

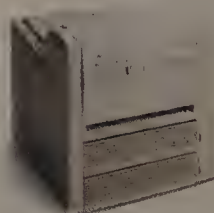
All prices are estimated street prices. Dealer prices may vary. microLaser and "Start Doing Extraordinary Things" are trademarks of Texas Instruments. The 8930 forms printer does not include Adobe PostScript and is not Energy Star of Adobe Systems, Inc. Windows is a registered trademark of Microsoft Corporation. PCL is a trademark of Hewlett-Packard. TI has determined that these products meet the Energy Star guidelines for energy efficiency. *Based on savings



MICROLASER 600
UNDER \$900
600 dpi, 5 ppm, PostScript,
Windows/DOS/Mac
compatible



MICROLASER PRO/8
UNDER \$1,300
600 dpi, 8 ppm,
PostScript,
Windows/DOS/Mac
compatible



**MICROLASER
POWERPRO/12**
UNDER \$1,550
600 dpi, 12 ppm, PostScript,
Windows/DOS/Mac
compatible

HIGH PERFORMANCE 600 DPI PAYS FOR ITSELF?

MICROLASER POWERPRO/12 UNDER \$1,550

600 dpi

12 ppm

Windows/DOS/Mac
compatible

Adobe PostScript

PCL5e emulation

500-sheet paper capacity

Pro Network option

MICROLASER PRO/8 UNDER \$1,300

600 dpi

8 ppm

Windows/DOS/Mac
compatible

Adobe PostScript

PCL5e emulation

500-sheet paper capacity

Pro Network option

INTRODUCING THE TI MICROLASER™ PRO SERIES. STARTING AT UNDER \$1,300.

Heavy duty printers that work with uncompromising performance are quite noteworthy. Those that pay for themselves are quite extraordinary.

And to appreciate the new TI microLaser Pro Series, start by looking at the obvious, the price. Then, consider what many overlook, cost of operation.

TI understands that over the lifetime of your printer, these costs can run into the thousands. That's why they designed a unique two-piece toner cartridge and imaging unit. So when one runs out, you won't have to replace both. Combine that with the consumables' built-in capacity for longer life, and the savings can literally pay for the cost of your printer.*

But perhaps most extraordinary — features like Windows®/DOS/Mac® compatibility (PostScript® and PCL™5e emulation) and greater paper tray capacity (500 sheets) come standard on TI's Pro Series.

So why settle for the ordinary? Simply call 1-800-TI-TEXAS. E-mail: (2ti@msg.ti.com) Internet: (<http://www.ti.com>).

**START
DOING
EXTRAORDINARY
THINGS™**



8930 FORMS PRINTER
UNDER \$2,500
Prints up to 9-part
business forms,
Windows/DOS/Mac
compatible

 **TEXAS
INSTRUMENTS**

Circle 266 on reader service card

compliant. Mac is a registered trademark of Apple Computer, Inc. PostScript and the PostScript logo are registered trademarks of .7 cents/page x 5,000 sheets/month over 5 years for TI PowerPro/12 vs. leading competitor's 12 ppm printer. © 1995 TI.

1995 Macintosh Game Hall of Fame

by
Steven
Levy

AFTER A DECADE OF PRESENTING THE MACINTOSH Game Hall of Fame, we've had a lot of readers ask how they can attend this year's induction ceremony. Sorry—we had it already. But we can tell you about it.

Weeks in advance, we imported dozens of graphic artists and 3-D rendering wizards, issuing them Peter Pan bus tickets to downtown Pittsfield, Massachusetts, where the Hall's spacious virtual quarters reside. Everyone set to work creating the massive displays that would greet the throngs of well-wishers and rubberneckers attending the annual white-tie induction.

The tension had built to a crescendo by then. You could have cut it with a joystick. The *Berkshire Eagle* conducted its annual opinion poll, and in every tavern, Wal-Mart, and Ben & Jerry's, the locals were arguing the relative virtues of, say, Paparazzi versus Voyeur. Television crews hit town (look—there's Connie Chung). We even hired construction workers from nearby Dalton to build a World Wide Web site.

Finally, the big night. Governor Weld threw out the first floppy. Then our honorary chairwoman, Beverly Sills, read the rules while people in the balcony, getting restless, started popping bubble wrap left over from the judging process. "Shut up!" she trilled, and proceeded, "The Macintosh Game Hall of Fame every year chooses the utter elite of Mac entertainment. The winners are chosen by an entirely subjective but ultimately infallible process that consists of smart people at *Macworld* nominating the best games, which are then shipped to the Curator and Grand Arbiter, who retreats to an electronic cabin and doesn't leave his monitor until the cream has risen. This year, as every year, we have a wonderful group. Let us salute them!"

Cheers, yells, hosannas. Then, with no further ado (we





ditched the production numbers in '89), we called out the winners. Each was presented with a gold-plated CD-ROM, a kiss from Miss Waconah Park, and an autographed Turk Wendell baseball card. Did it get emotional? Unbearably so. Lots of hugging, crying, and bitter, unprintable threats from the losers. Finally, the traditional close to the formal program: 1000 joy-sticks dropped from the ceiling, and everyone sang, in rough harmony, Elvis Costello's "Accidents Will Happen."

Then everyone filed into the Hall's massive rotunda, where row upon row of Power Macs were set up with the Game Hall of Fame Class of '95. Into the wee hours, with almost unsavory pleasure, we played these games. And now you can, too.

BEST ROLE-PLAYING GAME

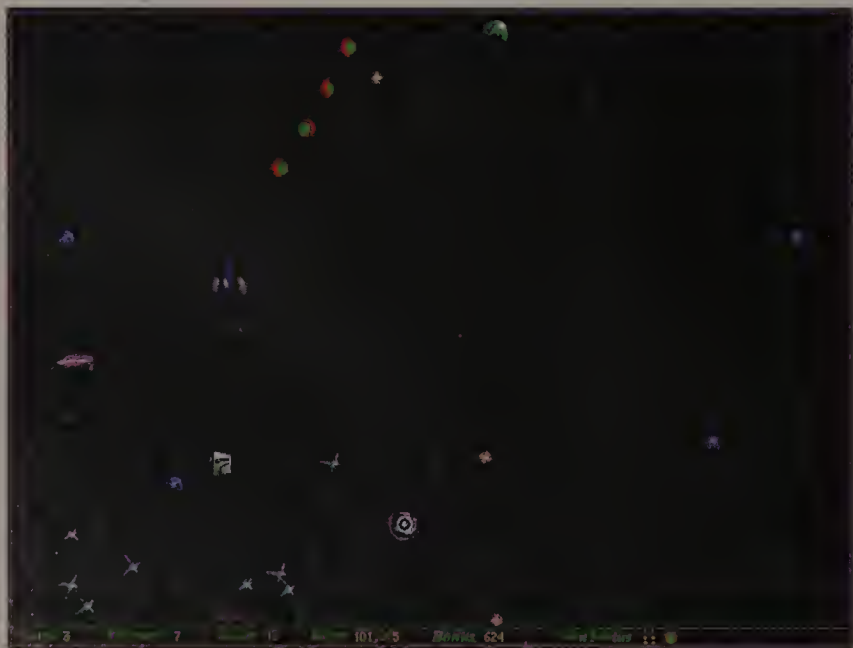
Reelect JFK

Quadra Interactive, 619/931-4755;
\$49.95 (CD).

Once you get past the ghoulish aspect of this historical-political thriller (isn't this president, uh, dead?), Reelect JFK's poll numbers rise dramatically, and you can appreciate this cleverly crafted interactive history lesson. The plot is classic what-if: imagine



Reelect JFK Here's a view experienced by a very few: the Oval Office, from behind the desk. Who's that briefing you? Your brother, Bobby Kennedy!



PegLeg OK, you've reached Sector 12 of PegLeg. That silvery thing below your spaceship is a cache of supplies: get it. Avoid everything else, particularly that nasty critter with legs.

that Lee Harvey Oswald (or whoever) only winged Jack Kennedy and that upon his return to D.C., Kennedy not only had to concentrate on getting reelected that next year, deal with the growing civil rights movement, and handle the escalating conflagration in a little country called Vietnam—he also had to solve the mystery of who wanted him dead. Now imagine you're him. You can actually have the weird experience of getting on the horn (with your Baah-ston accent) and trying to convince witnesses at the Book Depository that you're the chief executive and you just want the facts, ma'am.

Sounds crazy—almost as if Don DeLillo got into CD-ROMs—but Reelect JFK pulls it off. It has a classy graphic presentation (complete with period news footage), an interesting variety of scenes (ranging from the Oval Office to some strange locations in Dallas), a logical use of interactivity, and a serious stab at dealing with real issues—all mixed with the greatest mystery story of our century. Reelect JFK opens intriguing new possibilities for other pop-history scenarios: "Cover Up Watergate," anyone?

BEST SHOOT-'EM-UP

PegLeg

Changeling, 512/419-7085;
\$49.95 (disk).

Some cosmically inspired concepts can't be improved upon. Here's one of them: take a lot of weird-looking aliens and blast them to pieces with a gun that looks like a rocket ship. The latest refinement in this aesthetic is PegLeg. It won't win any awards in the original-concept division (besides Galaxian, its heritage includes the whimsical Crystal Crazy from Casady & Greene). But it will keep you playing. And playing.

What makes PegLeg particularly special—and compulsively seductive even to a jaded alien-blasters with an arthritic trigger finger—is its loving attention to detail. Each floating foe is deliciously rendered and bequeathed with a single onerous trait. One of them, after being shot, leaves a falling piece of debris that is fatal when it hits you. Another is an insectlike creature that leaps at you, blowing you to shreds at a mere touch. Then there's the SideWinder. Let's not talk about the SideWinder.

But, oh, such pleasure in blasting away the one that particularly irks you. At every turn, the PegLeg designers provide you with thoughtful features, such as an option for slow-speed play (for the kiddies) and double-speed play (for caffeine-snorting Power Mac fools). If you have a large monitor, PegLeg will fill it up. The game's crowning masterpiece is the unspeakably cool way that the renegade pirate hordes, who have vanquished you, drift to the center of the screen to morph into those dreaded words *game over*. It softens the frustration as you immediately, unthinkingly, unhesitatingly click on New Game to try again.

BEST ARCADE GAME

Power Pete

MacPlay, 714/553-6678;
\$29.95 (CD).

Who would have thought that we at the Mac Game Hall of Fame would get a rise out of a game whose point is to protect innocent, fuzzy bunnies? This kind of saccharine is not the image we want to project, but as presented in Power Pete, it really isn't sappy. In fact, you can forget about the trapped-in-a-toy-store plot—this is a dark and desperate quest. Killer clowns turn into murderous stalkers; stuffed dinosaurs stampede. A little toy shop of horrors!

In any case, once you take charge of the square-jawed eponymous protagonist (kind of a Stallone meets Disney) you'll be too busy blasting away with a wild array of weaponry—everything from flamethrowers to rocks—to notice. Power Pete requires a powerful Mac, and you can easily see why: the scrolling is velvet-smooth, and the animation is cartoon-perfect. Especially impressive are those moments when Power Pete is chased by what seem like dozens of killer gorillas—and he steps over a button that obliterates them in a circle of fireballs.

Power Pete is supposedly a kid's game, recommended for gamers as young as five. However, it's a rare kid of that age who's big enough to push away a parent intent on graduating from the Prehistoric Plaza to the Candy Cane Lane in this putatively charming, but secretly terrifying, arcade stunner.

BEST MULTIMEDIA GAME

Dust: A Tale of the Wired West

CyberFlix, 615/546-1157;
\$49.95 (CD).

Dust is a refreshing break—a slickly programmed, impressively presented multimedia tour de force that's not a space opera, but a horse opera, in the Hollywood tradition. Though this game was in the making longer than *Dances with Wolves*, it's not the smooth graphics and play action that impresses most, but the lighthearted touch—more Pat Buttram than Michael Cimino.

Welcome to Diamondback, an Old West town populated by central casting—gruff baddies, slick card dealers, saloon-hall ladies, and a town doctor based on Hillary Rodham Clinton (the one character here who falls flat). The real-life actors portraying the Diamondback denizens are surprisingly engaging, and the play action encourages exploration rather than offering punishment for missteps. (A liberal save-game function gives you further confidence.) The graphics are appropriately rustic, and the sound track is just right—as you stroll through the, uh, dusty night, a lonesome guitar chord sounds. During your evening revels the cathouse piano player keeps things jumping.

All in all, Dust is a high-spirited period romp that puts the fun back in computer adventuring.

BEST ADVENTURE GAME

Dark Forces

LucasArts Entertainment; 415/721-3300;
company's estimated price \$44.95 (CD).

Dark Forces is the best thing to come out of the *Star Wars* concept since Bill Murray's lounge-lizard version of the theme song. In a year when most games seemed to ask players to fight their way out of some interstellar maze, this is the one that actually makes you pay attention to your surroundings. The 3-D graphics are terrific—Dark Forces feels real. Each scenario is complex, and you, a rookie fighter in the service of the (non-Dark) Force, have to use your noodle more than your reflexes in order to finish. You'll wind up in places you hadn't imagined—like a stinky sewer—and you'll confront plenty of foes who serve as fodder for your sophisticated weaponry.

Unlike some serious space games where you get killed before you figure out how to mount your laser rifle, Dark Forces cuts you some slack. You get access to maps, and the puzzles that stand between you and your goals are not so baffling that they resist mortal solution—but they are tough enough to make you feel good when you solve them. At every turn, the Lucas film factory provides a satisfying experience: even when you get wiped out, you feel that you've learned something for the next time.



Power Pete One of the fascinations of Power Pete is his amazing array of weapons, ranging from rocks to flamethrowers to the birthday cake shown here. Do you think that cake is the best way to snuff those dinosaurs?



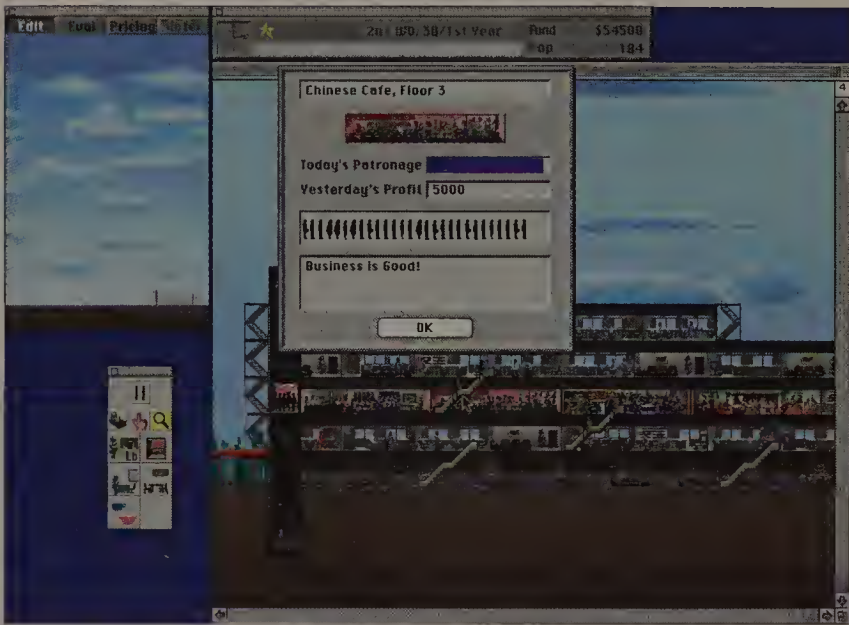
Dust This is Diamondback, a town without pretty. You're the buckaroo on the bottom right, and above is what you see as you ramble. Do not forsake me, oh my Performa.



Dark Forces Superslick graphics and a series of challenging missions are the hallmarks of Dark Forces, a *Star Wars*-inspired game. But you still have to blast away bad guys.



Marathon The cocked gun in the foreground is yours. You'll need it and plenty of other weapons (as outlined in green on the bottom of the screen) as you shoot your friends and foes in a networked game of Marathon.



SimTower Putting up a good facade in SimTower is easy—it's making a profit that's tough. Here, while the building is still under construction, we have a thriving noodle shop.



Strategic Leap Early in the game, before pieces become kings, the dark player has picked up a spell enabling him to resurrect a fallen piece; up for grabs are spells for kinging and a free move anywhere on the board.

BEST NETWORK GAME

Marathon

Bungie Software Products, 312/563-6200;
\$69.99 (disk or CD; runs over LocalTalk, Ethernet,
or Apple Remote Access).

Those who deny it are Doom-sayers: Marathon is the hot game among 3-D space-dungeon snarfers. The graphics are fast, the mazes are challenging, and the villains scream soulfully when you pump thick bullets into them. What could be better? Well, when you put Marathon on a network (we recommend Ethernet), you and your coworkers can go bonkers either teaming up against the horrible aliens who have hijacked a space colony or fighting the aliens—and each other—for added thrills and bad feelings in the coffee room.

Though network games, particularly ones this complex, tend to have failure rates that would shame even a TV cable company, Marathon is commendably stable. Everyone will get kicks out of the feature that lets you use your Mac's microphone to shout commands or issue taunts to others on the network. Afterward, everybody gets to read the perfectly dubbed Post-Game Carnage Report, a bar graph broken out by total carnage, individual carnage, and team carnage. Print it out for a permanent record of the way an entire office has spent the last nine hours.

BEST SIMULATION GAME

SimTower

Maxis Software, 510/933-5630;
\$39.95 (disk).

At first glance, SimTower seems to invite disappointment. Hey, previous efforts by this company have allowed us to build cities, fiddle with the global climate, and create life itself. Now we're supposed to be amused by constructing one lousy building? We needn't have worried. SimTower takes its place among the previous classics by its gentle—yet always ascendant toward something worthwhile—learning curve, its luscious graphics, and its fascinating ability to let complexity emerge from the mundane actions you initiate from the keyboard.

In SimTower, you're the architect of a giant edifice that can contain offices, commercial space, hotel rooms, and condos. Things you never really thought about (unless you were Nicholson Baker) become essential. Like programming elevators. Not enough elevators, or elevators coming at the wrong time, will make your inhabitants (called Sims) stressed out. They turn red. They don't think your rents are worth it. Do something!

Multiply these problems and you see that SimTower presents a challenge. But there are plenty of rewards and pleasures. The best part is the feature letting you single out 20 Sims and get to know them—you can even watch as the changes you make to the building ease the Sims' burden or send their stress levels to the roof. Never has a game made a user feel more godlike.

BEST BRAIN GAME

Strategic Leap

MacSoft, 612/559-5140;
\$29.99 (disk).

One of the very first forays into the realm of artificial intelligence was a program that played a fair game of checkers. Amusing, if you live in Mayberry.

Forty-some years later, we have Strategic Leap: a game that injects some hip-hop and mystery into that old chestnut—and,

if you are patient, will give you a fierce run for your money.

Strategic Leap provides two kinds of variations. One involves using new kinds of checkerboards (you can even design your own) where certain squares are blocked off. The other twist involves spells—serendipitous bonuses that, once you pick them up, give you instant kings, invulnerable pieces, free jumps to anywhere on the board, or (our favorite) an instant hit on the opposing piece of your choice. You can't control when or where these spells appear, adding a maddeningly random element to an otherwise pure game of skill.

The game has a clean design, and digitized sounds add to the experience without overwhelming it. If you play against the computer, Strategic Leap will keep your brain churning, especially if you're willing to wait until the machine cranks out solutions at the more difficult levels. Of course, you and a friend can square off. No fireworks—just a high-tech improvement on what the old folks used to play by the stove.

BEST STRATEGY GAME

Warlords II

Strategic Studies Group, 904/469-8880;
\$69.95 (disk).

Building an empire. Creating armies of elephants, giant worms, griffins, and Pegasi. Rummaging through ruins and pilgrimag-ing to temples. Sacking and pillaging. Totally destroying up to seven rival factions. These are the simple pleasures of an evening spent playing Warlords II.

While the empire-building genre has had its computer implementations since the mainframe days, the state of the art is right here. With an imaginative, Middle Earthy back-story, Warlords II—a greatly beefed-up update to the original—provides you (and your alter-ego hero) all the tools for conquest, presented in a nonintimidating and very Mac-like format. Experienced war gamers can go straight to the higher levels, but beginners will be sucked in by the ease of early conquest (though quickly challenged by the difficulty of maintaining armies and fending off multiple foes).

What makes everything go down easily are splendid graphics, a consistent interface, and a surprising depth. (It also helps that Warlords II is accelerated for the Power Mac.) For anyone who gets cocky at a few cheap wins over the Mad Mutants, Skirmishers, or Death Lords, there's the "I Am The Greatest" option, in which everybody fights you. In Warlords II, you have to earn your heroism.

BEST FLIGHT SIMULATOR

A-10 Attack

Parsoft International, 214/479-1340;
\$79.95 (disk or CD).

Fans of previous winner Hellcats Over the Pacific (created by the same team) will immediately grok what's going on in A-10 Attack—a stunningly realistic series of sorties into enemy territory, using exotic ordnance straight out of *Jane's Weapons Systems*. This time around, the vehicle in question is the A-10A Thunderbolt II, fondly referred to by its masters as the Warthog. This is the gutsy engine of destruction deployed in the Gulf war and known in particular for its ability to uproot tanks. Not as flashy or speedy as an F-16, the A-10A is a blue-collar warplane. But A-10 Attack offers plenty of advanced telemetry: video monitors, heads-up display, the works.

Novices will find the going tough at first—there's little hand-holding, just a brief training-manual file that supplements



Warlords II Your castles (the light ones) are in trouble, particularly from that avenging angel on the edge of the terrain. More alarming, the map on the right shows that your empire is weak. Prepare to die.



A-10 Attack Here's a view from the cockpit of the A-10 bomber, a.k.a. the Warthog. Note that the proliferation of instruments represents only a portion of the game's various gauges and switches. Somewhere below are enemy tanks.

a manual that's more useful in offering trivia than game hints. Especially challenging, though ultimately rewarding, are the tasks required in unleashing the fearsome array of killer missiles and bombs. (For some reason they involve a proto-Russian takeover of the former East Germany.)

In the age of smart warfare, you don't just open a bomb bay and let loose—even the most basic bombs are released in what's known as continuously-calculated-impact-point mode, and then there's the laser-guided variety. But gee, it feels good to cruise when under one wing is an AGM-65B scene-magnification electrical-optical Maverick missile, and under the other rests an AGM-65D imaging infrared missile. I love the smell of avionics in the morning!

Once you've mastered flight and attack, you earn medals by flying challenging missions. A-10 Attack's landscapes are gorgeously rendered, and there's a very helpful real-time tactical map. For those who wish to go gonzo in verisimilitude, the game even supports multiple monitors.

In short, A-10 Attack is a welcome addition to anyone's virtual battlefield. **m**

Contributing editor STEVEN LEVY authored *Insanely Great: The Life and Times of Macintosh, the Computer That Changed Everything* (Viking, 1994).

WHY APPLE CAN

B Y C H A R L E S P I L L E R



APPLE KILLS THE QUIX FI

T MEET DEMAND

Power users have often had to wait for the latest, most advanced Macs. Suppliers of new technologies—such as today's PowerPC 604 CPUs—often take months to ramp up production sufficiently to meet market demand. But since early spring, waiting for a wide range of Power Mac models has required the patience of Job. Despite dramatic growth in Apple sales, the company has had a frustrating time meeting skyrocketing demand. The highly respected Macintosh industry analyst Pieter

Hartsook estimates pent-up demand in biblical proportions—an astonishing \$1 billion, amounting to hundreds of thousands of potential customers.

Most PC vendors are also having trouble meeting demand—thanks to a higher-than-expected growth in personal computer demand and a parts shortage—but not nearly the trouble Apple has experienced. So the biggest boom period in Mac sales in history has ironically taken on an apocalyptic feel for Apple. The company's worldwide share of the computer market now stands at about 8.4 percent, according to International Data Corporation, and it seems to shrink month by month—along with Apple's stock price.

Faced with lower profits on older models and delays in introducing its PCI Power Macs and new PowerPC-based PowerBooks, Apple has warned shareholders to expect lower earnings, a move that has led to a new round of criticism that the company is poorly managed and ripe for takeover. Apple financial chief Joseph Graziano, who had reportedly been frustrated over the company's direction for some time, resigned under pressure in October.

Apple and the Mac-clone producers are particularly susceptible to parts shortages because they rely on Mac-specific chips made by only a few companies. Long delays in building production capacity for such components—along with Apple's lukewarm approach to licensing the Mac OS—have contributed to the clone market's degeneration into a state akin to suspended animation (see "Clone Market's Slow Road").

Despite the crippling parts shortages in unique application-specific integrated circuits (ASICs), Apple has officially rejected the efforts of Quix Computerware, a small Swiss company, to move the Mac OS to IBM's standard PowerPC-based PC design—a design that does not rely on those ASICs and would have allowed Big Blue and perhaps others to sell Macs in volume by early next year.

Massive Increase in Demand

How did Apple get into this predicament? Its ambivalence to clones aside, the fault is not all Apple's. Sky-

rocketing demand for PCs and consumer electronic devices of all kinds in the last year put Apple and every other computer maker in a tight spot. Nearly every imaginable component—including memory chips, capacitors, CPUs, and modem chips—has been in short supply worldwide. For Apple, the worst shortages have been in PowerPC CPUs and ASICs.

According to an internal Apple report obtained by *Macworld* and written by Fred Forsyth, Apple's senior vice president for worldwide operations, Apple expected 15 percent growth and actually experienced 20 percent growth in sales during recent months, although demand was obviously far in excess of sales.

"Keep in mind that Apple forecasted the way the industry forecasted," says industry analyst Tim Bjarin. "To their dismay—and joy—demand has been running at 32 to 35 percent [above the preceding year]. Nobody could have predicted that," he says.

In defense of Apple's efforts, Forsyth tells *Macworld*, "This year we've transitioned about 75 percent of the product line to PowerPC. This past quarter we've basically ramped the entire product line over to PowerPC, including the PowerBooks." He adds, "This is the largest transition we've ever made in our history, something that we wouldn't expect to see again in five years." Indeed, by the end of 1995, the only non-PowerPC Macs for sale will be the PowerBook 190 and some Performa models in the 500 and 600 series.

Apple CEO Michael Spindler points the finger for product shortages directly at suppliers. Spindler says that the makers of some components were not delivering promised allocations to Apple, in abrogation of prior commitments.

Macworld asked the key Apple ASIC providers, Texas Instruments and VLSI Technologies, to indicate when they would be able to meet Mac-market demand. VLSI declined to comment, and Texas Instruments did not return our calls. Apple has clearly painted itself into a corner by depending on so few suppliers. Accordingly, Forsyth says, Apple is moving to diversify its supply base.

Despite these conditions, executives at Apple, as

TO THE PARTS SHORTAGES

well as at clone makers Radius and Power Computing, agree that any Mac or clone based on a PowerPC 601, 603, or 603e CPU should be readily available by the end of 1995, and that shortages were beginning to ease by mid-September. Bear in mind, however, that Apple has been predicting an end to the bottleneck for some time, without results.

Longer-Term 604 Shortages

Even if the PowerPC 601- and 603-family shortages end, Apple and the clone makers face another daunting problem. The PowerPC 604—currently the fastest Mac CPU—is still extremely rare as Motorola and IBM ramp up production. Phil Pompa, director of marketing for RISC processors at Motorola, declines to predict how long CPU shortages will last, saying only that “we are directing more capacity toward 604’s as we speak.” Pompa says that a new PowerPC fabrication facility will be up and running in June 1996, and that shortages will gradually go away between now and then. Forsyth predicts problems in meeting

Prognosis for Buyers

Waiting for Apple and its suppliers to get into sync is a discouraging proposition for consumers who face this choice: buy a slower Mac now, or stand in an indefinite queue to move up to a 604-based unit.

The bottom line seems to be long delays on high-end Macs and clones, and slower-than-expected expansion of the clone market. Low-end machines will be more readily available, both because many of them use the 601 chip and because Apple will probably divert resources to production of consumer products to meet the holiday-season spike in demand. Unfortunately, this approach to feeding the Mac’s anemic market share would force consumers to buy at the low end, while Intel-based machines catch up to, or leapfrog, PowerPC performance.

Apple’s not alone in this dilemma. Many PC makers have been forced to make similar decisions. For example, Compaq has reduced production of servers so it can direct parts to other kinds of systems. But these problems are far less

tem 7.5 or Copland (the code name for Apple’s next-generation system; see “The New Mac OS Unveiled,” *Macworld*, July 1995) to be available for CHRP-based Macs before fall 1996 at the earliest.

PreP as Stopgap

The CHRP transition should definitively end Apple’s competitive disadvantage in obtaining parts. But a year is a long time in this industry, especially for a company whose market share (and stock price) have plummeted recently. This may explain why many of Apple’s own OS engineers are mystified by the company’s rejection of the effort to move the Mac OS to IBM’s PreP design.

Quix Computerware has found a way to make the Mac OS run on PreP systems. Although Apple approved Quix’s earlier product, which lets the Mac OS run on Next systems, Apple has rejected Quix’s port for PreP—despite IBM’s strong requests that Apple approve Quix’s PreP product and despite findings by Macworld Lab that the product delivers on its promise (see “Apple Says No to

SPINDLER SAID THE GATEWAY REJECTION HAD
NOTHING TO DO WITH PARTS SHORTAGES. BASI-
CALLY, APPLE DIDN’T WANT THE COMPETITION.

PIETER HARTSOOK, LEADING INDUSTRY ANALYST

demand for 604-based products into the first quarter of 1996, but expects steady improvement after that, as increases in manufacturing capacity begin to kick in.

However, according to analyst Bjarin, the 604 CPUs available in the near term will primarily be the slower, 120MHz version. The 132MHz version used in one Power Mac 9500 model, and the anticipated but not yet available 150MHz version, will remain scarce well into the second quarter of 1996. And once sufficient chip-production capacity comes on-line, it will take up to three months to fill pent-up demand, Bjarin says.

Even when 604 chips become available in ample supply, the ASIC shortage could continue to haunt Apple and the clone makers. The systems marketing director for Radius, Joe Eschbach, says that over the past six months his company has faced up to 48-week delays for key ASICs, and many weeks for other key parts. He predicts that these shortfalls won’t go away completely until late 1996.

onerous for PC consumers than for Mac buyers. PC buyers can get, say, a server from IBM if Compaq focuses on desktop units for a quarter. In the Mac market—where Apple must be all things to all people—buyers can’t do that. Nor does the existence of Mac-clone makers help, because of the limited supplier problem.

“Ultimately, [to solve the parts problems] Apple should move to a more industry-standard architecture, and then they will be no worse off than anyone else,” says analyst Hartsook. “But in the meantime it appears that they can be held hostage to suppliers of custom parts.”

CHRP—the Common Hardware Reference Platform based on IBM’s PreP (PowerPC Reference Platform) design and modified by IBM, Apple, and Motorola to accommodate the Mac OS—represents an industry-standard architecture that Apple will ultimately move to. Apple’s official estimates place System 7.5 on CHRP machines in June 1996, although few in the industry expect Sys-

IBM’s Macintosh,” *News*, October 1995).

Macworld’s revelation of the Quix port forced Apple to reconsider its initial rejection of the Quix option in July 1995, but in early October 1995, Apple again closed the book on Quix.

Apple officials have declined to comment on their reasons for rejecting Quix’s request for an OS license. But engineers on Apple’s OS-development team did speak to *Macworld* on condition that they not be identified, for fear of losing their jobs. One engineer expressed confusion over Apple’s decision. “We were trying to understand why Apple wasn’t supportive of Quix,” the engineer told *Macworld*. “Some concerns we heard expressed didn’t make any sense to us.”

Apple officials feared that Apple would have to provide a lot of support to Quix to ensure that PreP machines running the Quix OS version would be able to run new versions of the Mac OS, the engineer said. This is a nonissue, according to Quix, whose software tricks any

CLONE MARKET'S SLOW ROAD

PReP-based computer into thinking that it is a single Power Mac model. As long as Apple supports the Mac model that Quix has chosen, there should be no problem with all PReP-based computers' supporting the next version of the Mac OS. An Apple OS engineer confirmed the technical validity of the Quix approach.

Plus, there's no reason for Apple to worry about whether Copland would run on a PReP system—if IBM wants to ship System 7.5—only systems, that's its business, not Apple's. After all, Apple continues to ship systems like the PowerBook 190 that will not support Copland, and Apple has no problem with DayStar Digital's continuing to ship PowerPC accelerators for 680X0 Macs, even though Copland won't support these either.

For our October issue, Macworld Lab tested an early version of the Quix software running on PReP computers that offered near-flawless compatibility with dozens of Mac applications while yielding performance equivalent to that of Apple's Macs. At that time, some key OS components had not been ported. In recent testing, Macworld Lab found that now only the floppy driver, the serial driver, and support for some Apple-style PCI cards remain to be ported (Quix already supports PC-style PCI cards). In other words, Quix says, the product is nearly completed.

Ironically, Apple's own OS engineers directly contradict concerns they say are being voiced by Apple licensing officials that the Quix product is unacceptable because it lacks support for LocalTalk and ADB. "These are hardly essential technologies," according to one Apple OS engineer. "If business users have PS/2 equipment, they wouldn't want ADB anyway. They'd prefer to get a box that has a PS/2 connector, so they could keep using their mice and other input devices."

Even so, Quix would support LocalTalk with an inexpensive add-on card, and ADB with an inexpensive adapter, says Andy Grawehr, president of Quix.

"I have not yet met anyone, among many Apple engineers I've spoken with, who disagrees with me that we should give Quix a license," the Mac OS engineer adds.

Jay Hamlin, a lead engineer on the team producing the Pippin OS, a version of the Mac OS being developed for multimedia game devices, posted this message to a publicly accessible bulletin board run by Apple for the developer community: "Quix has been doing a great job with getting System 7 to run on a PReP box. There are quite a few people here (me included) that want Quix to be granted a license and are upset that it didn't happen a long time ago."

Parts shortages are only one in a range of problems that Mac-clone makers have faced in recent months. Last summer many in the clone industry believed that by August 1996, clone makers would capture about 10 percent of the total desktop Mac market—some 400,000 machines, by today's reckoning. Today those estimates seem wildly out of line with reality, given Apple's cautious approach to OS licensing.

On the positive side, Power Computing CEO Steve Kahng claims that his company is moving along its previously predicted path to ship 100,000 units by June 1996, although there is no way to verify the company's sales estimates. And South Korean computer maker LG Electronics (known for its GoldStar brand) has announced that it intends to license the Mac OS and sell Power Computing-manufactured clones in Korea. LG Electronics is an investor, along with Italy's Olivetti, in Power Computing.

Finally, Apple plans to soon announce a European licensee for the Mac OS, according to Apple Europe president Marco Landi. The new clone maker will improve the Mac's position in the education market, Landi says. This points to Acorn, a United Kingdom-based company that has long been rumored as being interested in the Mac OS. Acorn enjoys a commanding share of the education market in the United Kingdom.

Blocking Real Competition

But such developments, should they come to fruition, fall far short of Apple's own clear benchmarks for building a clone industry that helps achieve Apple's primary goal for licensing—growing the Mac OS market share relative to Windows. Don Strickland, Apple's vice president for business and government, made it clear in comments to *Macworld* last summer what Apple must do to establish a credible clone program: "It's absolutely true that we have to have at least a couple of licensees in the top 20 computer makers worldwide . . . and you have to have licensees that are not just in niche markets." Paradoxically, however, Apple recently spurned Gateway—the number-12 worldwide computer vendor in 1994—as its first mainstream operating system licensing partner.

Neither Apple nor Gateway would comment about their talks, although published reports have suggested that ongoing parts shortages were responsible for scuttling the Gateway deal. Apple's rejection of Gateway actually had nothing to do with

the parts shortages, according to Apple spokeswoman Laurence Clavère.

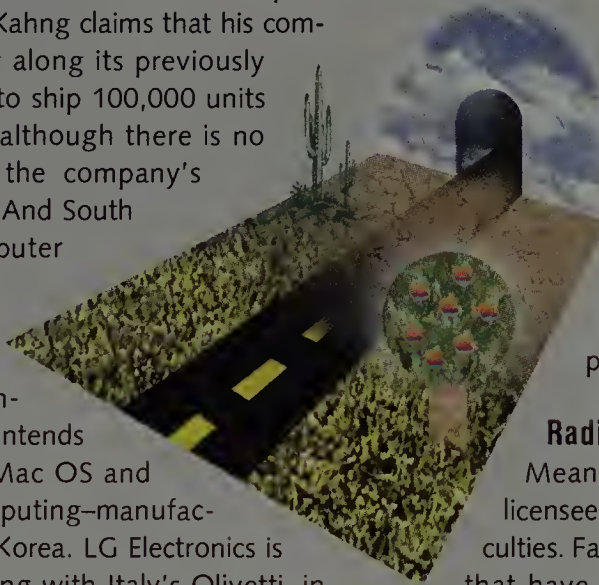
The rejection was a pure and simple matter of shying away from a strong rival, according to Macintosh industry analyst Pieter Hartsook, who spoke directly with Apple CEO Michael Spindler on the matter. "Basically Apple didn't want the competition. Spindler said the Gateway situation 'had nothing to do with parts shortages.'" Hartsook believes Apple is afraid that going head-to-head against a clone maker the size of Gateway could affect Apple's bottom line in a period of anxiety about the company's profitability.

Radius, DayStar Troubles

Meanwhile, the other U.S. licensees are experiencing difficulties. Faced with parts shortages that have limited the number of clones it can make and sell, thin margins on its other product offerings, and the costs of continued development in its video-editing and color-publishing product lines, Radius laid off about half of its staff, or some 200 people. Radius lost \$3.1 million in the fiscal quarter ending June 30. At press time, Radius had yet to announce results for the quarter ending September 30.

Radius says that its engineering and customer-support staffs are relatively unaffected and that the layoffs do not change the company's essential focus on selling high-end, integrated, multiproduct solutions for color publishing, video editing, and business color printing. Radius spokesman Andrew Eisner says that the company will move away from its short-lived foray into mass-market clones. The news can hardly be interpreted as a shot in the arm for the clone market. Meanwhile, former Radius executive vice president Rick Schrameck left the company in September to attempt to found his own Mac-clone company under the SuperMac name, which he would license from Radius (see *News*, elsewhere in this issue).

Unexpected delays have forced another U.S. licensee, DayStar Digital, to hold back shipment of its Genesis MP Mac-compatible system, which will have four CPUs that can work simultaneously to speed up processing in Adobe Photoshop and other programs tuned for multi-CPU operation. The company should have limited quantities of the \$10,000 and \$15,000 versions of the system available by the time this issue appears (mid-November 1995). (See *MacBulletin*, in this issue.)



THERE ARE QUITE A FEW PEOPLE HERE (ME INCLUDED) THAT WANT QUIX TO BE GRANTED A LICENSE AND ARE UPSET THAT IT DIDN'T HAPPEN A LONG TIME AGO

JAY HAMLIN, APPLE OS ENGINEER

"If IBM comes on the scene [by licensing the Mac OS for its PReP machines], they don't have any parts shortages, at least not the same ones we do," says another Apple engineer. "Not to mention that if IBM sells the Mac OS, we'd get credibility from the IS people who still fail to take the Mac seriously, plus we get a tremendous amount of free advertising."

Apple's few public statements on its reasons have not stood up to examination, and thus the logic of its Quix rejection is murky at best. For example, Apple initially said it would be too difficult to make the Mac OS run on a PReP system. But Quix proved that untrue. Then Apple said the Quix product wouldn't work. Macworld Lab proved that untrue, and Apple engineers confirm our findings. Now Apple says that with CHRP systems to be ready in mid-1996 with System 7.5, there is no need for Quix's PReP-based option. But aside from Apple's official spokespeople, nearly everyone in the industry, including some Mac OS engineers, views that timetable as wildly optimistic. The result of all this will be a constrained supply of Macs and Mac clones.

Combine the Quix rejection with Apple's continuing pattern of spurning other, more mainstream potential Mac OS licensees (see "Is Apple Serious about Clones?" in *Macworld*, August 1995), and what do you get? The unmistakable conclusion that there will be no significant clone market before Apple makes the transition to CHRP. Forget Apple's original predictions—and the Mac industry's hopes—that 1996 would be the year that put Mac clones in the mainstream. It's clear that this won't happen, largely because of Apple's reduced commitment to the clone option.

To Clone or Not to Clone

And in another sign that Apple's OS-licensing efforts are in deep freeze, two of the company's three most important licensing officials have been reassigned. Larry Lightman, formerly director of worldwide Mac OS licensing, has been shifted to handle licensing in Europe only. Jim Gable, formerly direc-

tor of the transition to CHRP, is out of licensing and in a new job involving OS marketing. (Apple would not officially acknowledge the shift or comment on what Gable's new job entails.)

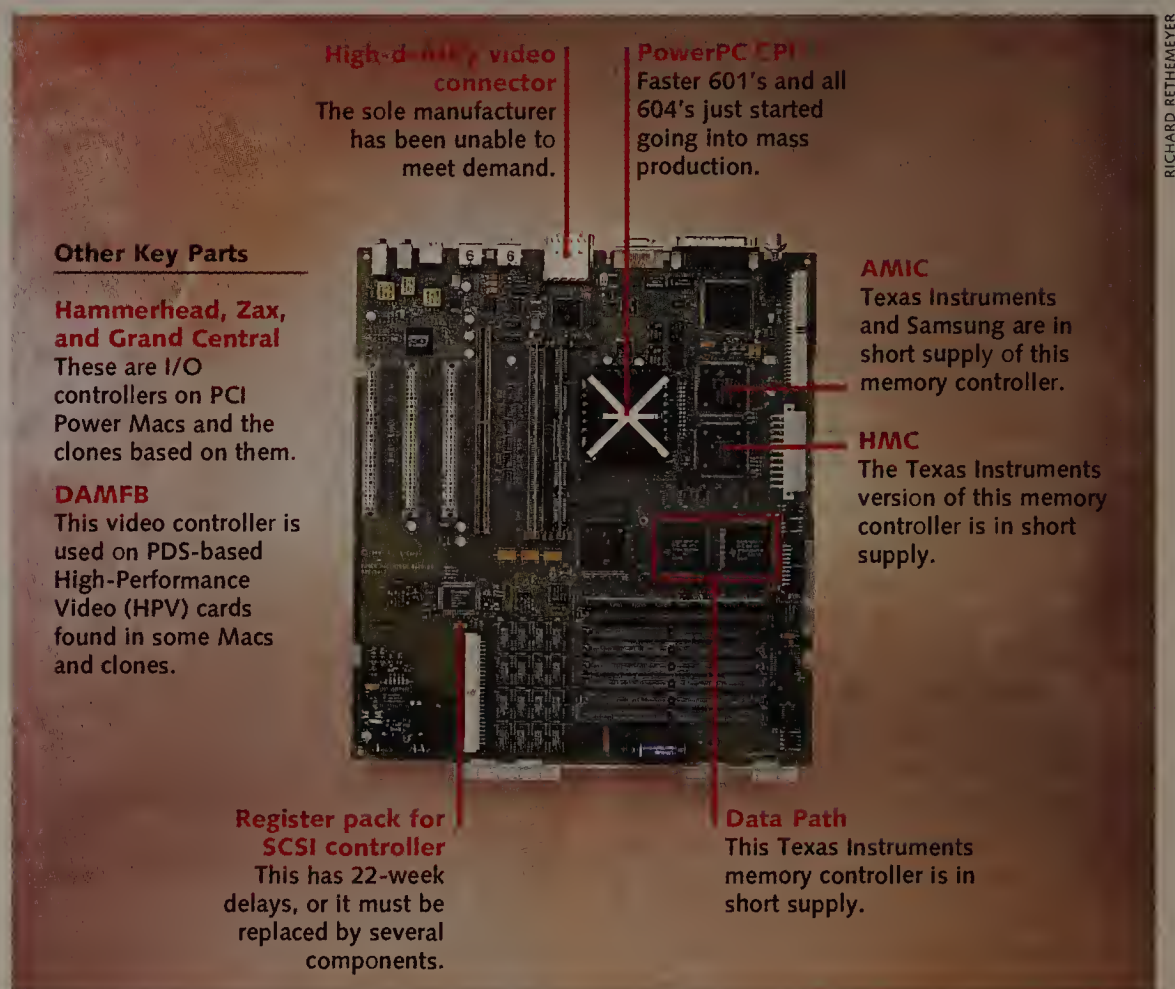
Equally telling was Apple CEO Michael Spindler's recent letter on 1996 corporate strategy, sent to Apple employees and obtained by *Macworld*. Nowhere in the lengthy missive does Spindler mention the words *clone* or *licensing*.

Will Apple really open the floodgates to clone makers after CHRP, as it has promised? If recent events are any indication, don't bank on that happening either. Apple is avoiding large-scale competitors in the Mac market at all costs. For example, Apple recently decided not to pursue a deal with Gateway 2000, one of the largest PC makers, to make Mac clones. Why? Apple didn't want a mainstream competitor in the United States. That's the reason Spindler gave to a

group of industry analysts, according to analyst Hartsook, who was among them. Apple refuses to comment on the reason, but the company does confirm that a *MacWeek* story blaming the parts shortage for the failure to get a Gateway deal was incorrect.

Instead, Apple is channeling clone makers into niche markets in this country (Power Computing for mail order and Radius for publishing and multimedia) and to foreign markets (likely licensees are GoldStar in South Korea and Acorn in the British education market) where the Mac has never gained a firm foothold. Such an approach suggests that Apple views clone makers with suspicion and fear. One can only wonder how potential licensees view Apple. **m**

Senior editor CHARLES PILLER covers the Mac-clone market and the effects of technology on public affairs and public policy.



Buddy, Can You Spare a Transistor? A shortage of key components is making it hard for Apple and clone makers to ship Power Mac systems. Component suppliers would not talk to *Macworld*, but several industry engineers identified the key hard-to-find parts, shown here on a Power Mac 8100 motherboard.

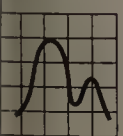
STATISTICA[®] Mac

STATISTICA[®] Mac A complete statistical data analysis system with hundreds of presentation-quality graphs integrated with all procedures. In-depth, comprehensive implementations of: *Exploratory techniques; Descriptive statistics; frequency tables; Large selection of nonparametric tests; Stepwise multiple regression methods with extended diagnostics; General nonlinear estimation with predefined or user-specified models; Logit/Probit analysis; General implementation of ANOVA/ANCOVA/MANOVA/MANCOVA (designs of practically unlimited complexity, repeated, nested, incomplete, random, changing covariates, contrast analyses, post-hoc tests, custom designs); Stepwise discriminant function analysis; Canonical analysis; Large selection of time series modeling techniques with forecasting; Factor analysis; Cluster analysis (incl. hierarchical, k-means, and 2-way joining); Reliability/Item analysis; Log-linear analysis; General survival/failure time analysis (incl. life tables, group comparisons, and regression models); Distribution fitting (a large selection of continuous and discrete distributions); Curve and surface fitting and smoothing (incl. spline, PLS, NEX, and others); and much more.* Manual with comprehensive introductions to each method and step-by-step examples (Quick Reference booklet explains all major conventions); balloon help. Extensive data management facilities: a super-fast spreadsheet of unlimited capacity with formulas (and *Publish and Subscribe*); merge/split files; "double identity" of values (numeric/text); BASIC-like data transformation programming language; Import/Export data and graphs from Excel, STATISTICA^w and other formats. Graphs integrated with all procedures (e.g., click on a correlation coefficient to produce the corresponding scatterplot and other graphs; click on a variable in the descriptive statistics table to produce a histogram and other graphs; click on an interaction effect in the ANOVA table to see plot of interaction). Large selection of 2-dimensional graphs: *Histograms (incl. multiple, clustered breakdowns, overlaid functions); Scatterplots (incl. multiple, weighted frequency, smoothed, function fitting); Multiple line and Range plots; Trend plots; Standard deviation plots; Data sequence diagrams; Contour plots; Box-and-whisker plots; Column plots; Bar graphs; Double pie charts; Scrollable dendrograms; Two-way joining plots; Curve fitting plots; Distribution comparison plots; Range plots; Probability plots; Amalgamation plots; Factor space plots; Casewise outlier and residual diagrams; ANOVA interaction plots; Multivariate (multiple) matrix plots; exploratory Draftsman plots with histograms, categorized (multiple) graphs, and many other specialized plots.* Large selection of 3-dimensional graphs: *3D surface plots (with data smoothing procedures, color or gray-scale shading, and projected contours); 3D scatterplots; 3D block scatterplots; 3D axis (space) plots; 3D spectral plots with adjustable planes; 3D line/ribbon plots; 3D sequence block plots; 3D histograms; 3D surface-smoothed frequency plots, and 3D range plots ("flying boxes").* All 3D plots displayed in true perspective, feature interactive real-time rotation facilities (incl. continuous rotation). Extensive graph customization options: all structural aspects of graphs (axes, scaling, patterns, colors, sizes, styles, regions, perspective, rotation, fitted functions, etc.); MacDraw-style tools with specialized "objects," hierarchies, graph and artwork embedding; page layout/preview; dynamic rulers. All output displayed in *Scrollsheets[™]* (dynamic, internally scrollable tables: all numbers can be instantly converted into a variety of on-screen customizable, presentation-quality graphs). All contents of *Scrollsheets* can be saved as data and used for input, or be exported. Flexible facilities to perform analyses on specific subsets of data. Extremely large analysis designs. Unlimited size of files. Extended precision. Unmatched speed (e.g., on a Mac IIx, arbitrary rotation of a surface with 1000 points takes 1 second; correlation matrix 50x50 with 100 cases—less than 3 seconds; transposing a 5000 data points file—less than 2 seconds). Full support for System 7 ("savvy") incl. *Publish and Subscribe*, Apple events, balloon help, "drag and drop," 32-bit, etc. Price: **\$695.**

Quick STATISTICA[®] Mac A subset of STATISTICA[®] Mac. All basic statistical modules of STATISTICA[®] Mac (*Basic and Descriptive Statistics, Frequency tables, Exploratory data analysis, Nonparametrics, Distribution Fitting, Stepwise multiple regression; ANOVA/ANCOVA*). Manual with comprehensive introductions to each method and step-by-step examples (Quick Reference booklet explains all major conventions). All data management facilities of STATISTICA[®] Mac (including interactive rotation of all 3D graphs, extensive on-screen graph customization facilities). Price: **\$395.**

Windows versions also available (can exchange data with Macintosh versions): STATISTICA^w \$995; Quick STATISTICA^w \$495.

Domestic sh/h \$10 per product; please specify type of computer with order; 14-day money-back guarantee.

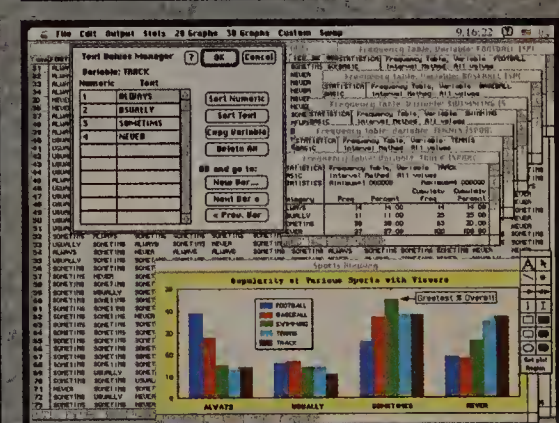
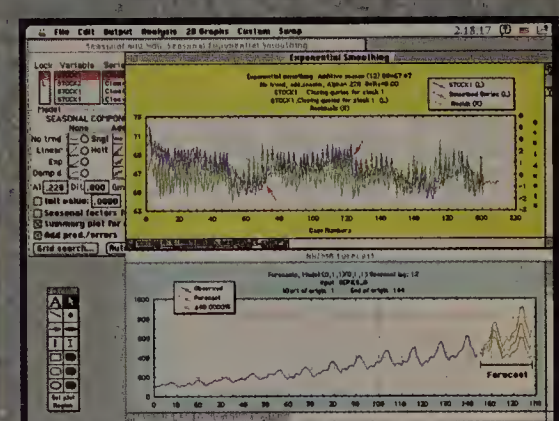
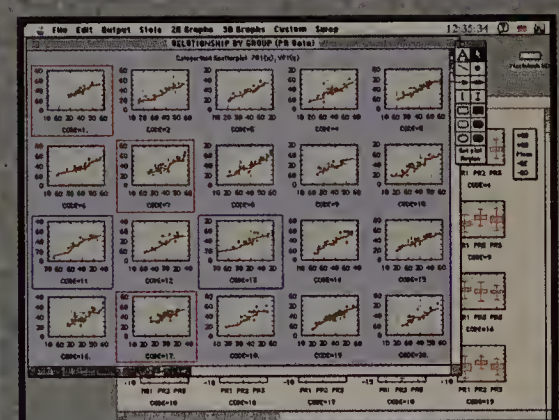
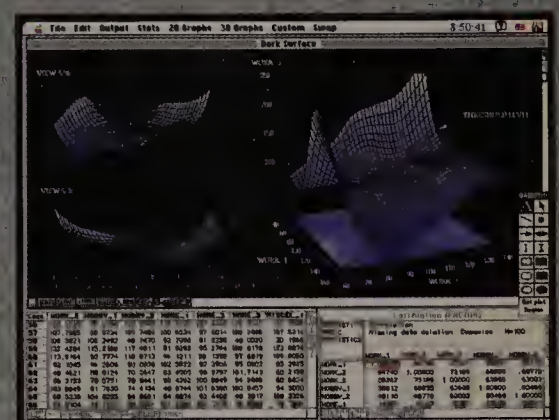
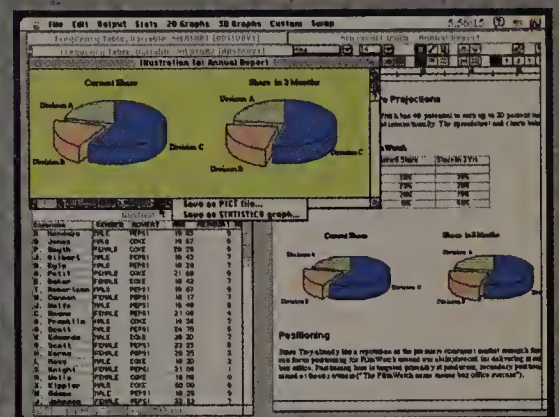
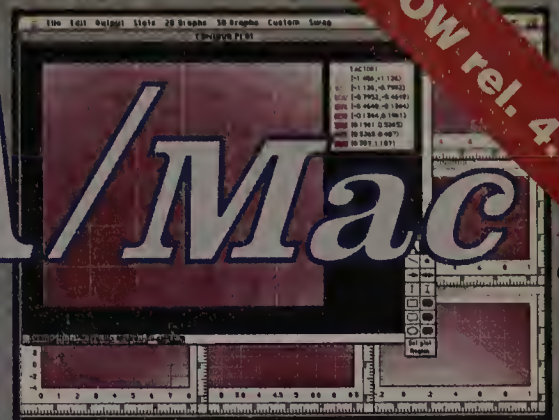
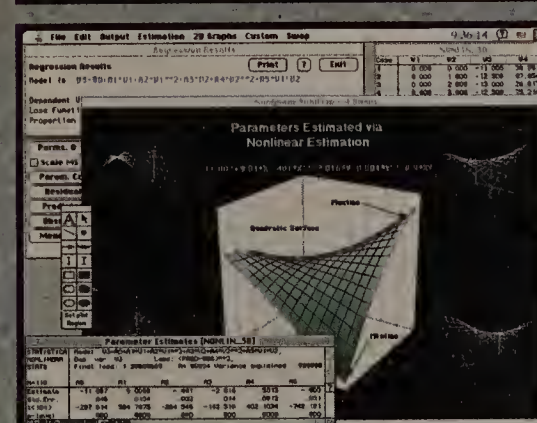
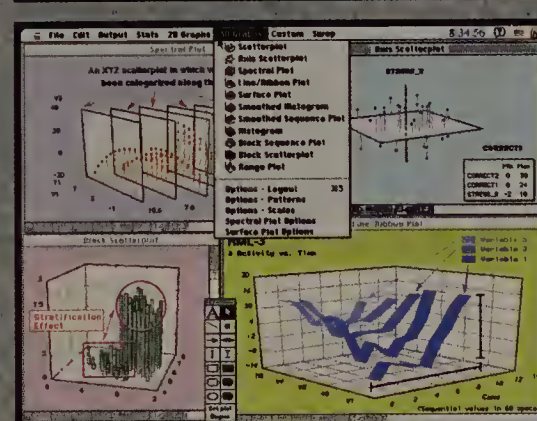
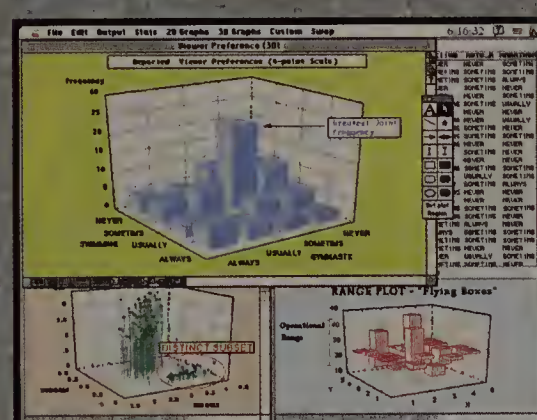
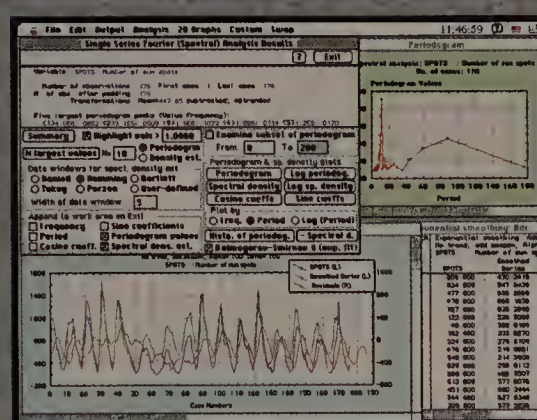
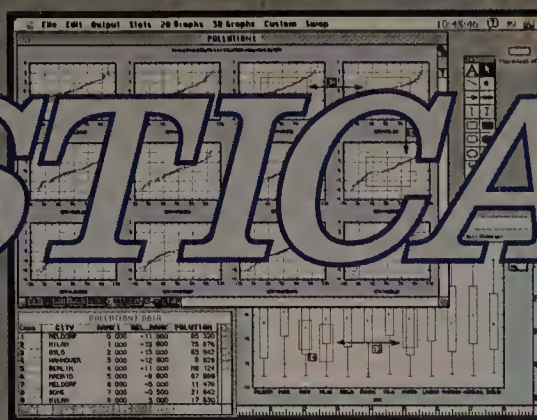


StatSoft[®]

2325 E. 13th St. • Tulsa, OK 74104 • (918) 583-4149
Fax: (918) 583-4376

Circle 99 on reader service card

Overseas Offices: StatSoft of Europe (Hamburg, FRG), ph: 040/ 4200347, fax: 040/4911310; StatSoft UK (London), ph: 0462/482822, fax: 0462/482855; StatSoft Pacific (Melbourne, Australia), ph: (03) 663 6580, fax: (03) 663 6117; StatSoft France ph: (1) 45 66 97 00, fax: (1) 45 66 06 51; Available from other Authorized Representatives worldwide: Sweden: Akademidata Scientific ph: 018-210035, fax: 018-210039; Finland: Statcon Oy ph: 24-334678, fax: 24-333867; Belgium: Texma NewTech ph: 10 61 16 28, fax 10 61 69 57; South Africa: Osiris ph: 12-663-4500, fax 12-663-6114; Japan (Macintosh): Three's Company, Inc., ph: 03-3770-7600, fax 03-3770-7784; Japan (Windows): Design Technologies, Inc., ph: 03-3667-1110, fax: 03-3668-3110; Italy: Prompt SRL ph: 49-893-3227, fax: 49-893-2897; Poland: Companion Oprogramowanie ph: 12-369680, fax: 12-360791; Taiwan: Intelligent Integration Corp. ph: 2-759-1791, fax: 2-759-1790; StatSoft, the StatSoft logo, STATISTICA, and Scrollsheet are trademarks of StatSoft, Inc.



Now rel. 4.1



Brittany Stromberg

Dallas, Texas

WRITER

WORDPERFECT FOR MACINTOSH USER

Used to have a tin grin.

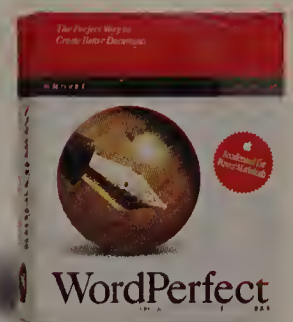
Used to dance the pogo.

Used to use Microsoft Word.

Ask Brittany Stromberg about her past with Microsoft

Word and she just shakes her head. "I never even use it anymore," she says. "The interface really bugged me." Now she uses WordPerfect® for the Mac. It runs faster. Requires less disk space. And offers things Word simply doesn't. Like new version 3.5 with the ability to import and create your own Internet pages. Bookmarks for linking text. It'll even "speak" what you write. All good reasons to bury Word in the closet. Right next to those old prom pictures.

**New version 3.5
with Internet
publishing tools.
Switch for \$89.***



WordPerfect®
NOVELL

FULL-PROOF

NEED A COLOR PROOF YOU CAN DEPEND ON? MACWORLD PICKS THE BEST DYE-SUB PRINTER FOR THE JOB

PRINTERS

BY
JIM
MEID

When it comes to color printing, a publisher is a tough customer. A home, education, or business user has modest requirements: make my diagrams, bar charts, and overhead transparencies vibrant and make them inexpensive. But publishers don't use color printers to punctuate presentations or dress up reports. They use them to assess the color balance of photographs, to prepare layouts for client approval, and to proof four-color layouts before sending jobs to press.

Applications like these bring demands that keep printer designers awake at night: Make sure the output matches what I see on my monitor. Allow me to change the color to simulate

various printing technologies and color-separation standards. Enable me to proof tricky prepress problems such as traps and overprints. Don't obscure fine details with a haze of halftone dots or dither patterns. And make it inexpensive and fast, because I'm tired of paying for and waiting for photographic proofs.

Only one class of printer can meet these requirements: dye-sublimation printers. These top-of-the-line types are the most specialized color printers. While color ink-jet, thermal-wax, solid-wax, and laser printers are flooding offices that have jumped aboard the plain-paper bandwagon (see "Color Printers Mean Business," *Macworld*, September 1995), dye-sub printers are designed for publishers, photographers, and scientists: people for whom photographic-quality output is more important than the ability to print on company letterhead.

And dye-sub printers are getting better at meeting these demands. For this comparison, Macworld Lab tested seven dye-sub printers, plus one ink-jet printer targeting the publishing industry, and found significant price and performance improvements over the batch we tested last year (see "Photo-realistic

Color Printers," July 1994). At the low end (and the slow end), Fargo's Pictura 310 provides remarkably good quality for \$4995. In the midrange, General Parametrics' \$7695 SpectraStar DSx provides superb text quality in a compact package. Seiko Instruments' Professional ColorPoint series combines dye-sub and thermal-wax technologies to give you the quality advantages of the former and the low operating costs of the latter. Beyond \$13,000, three machines—3M's Rainbow 2720, Radius's ProofPositive Two-Page, and Tektronix's Phaser 480X—provide the broadest range of proofing options we've seen yet.

We also tested Lexmark's Color Jetprinter 4079 Plus. This ink-jet machine has serious limitations compared with its dye-sub competitors, but it also has some advantages in price—and in some cases, output quality (see "Is Ink-jet an Alternative?").

Dye-Hard Color

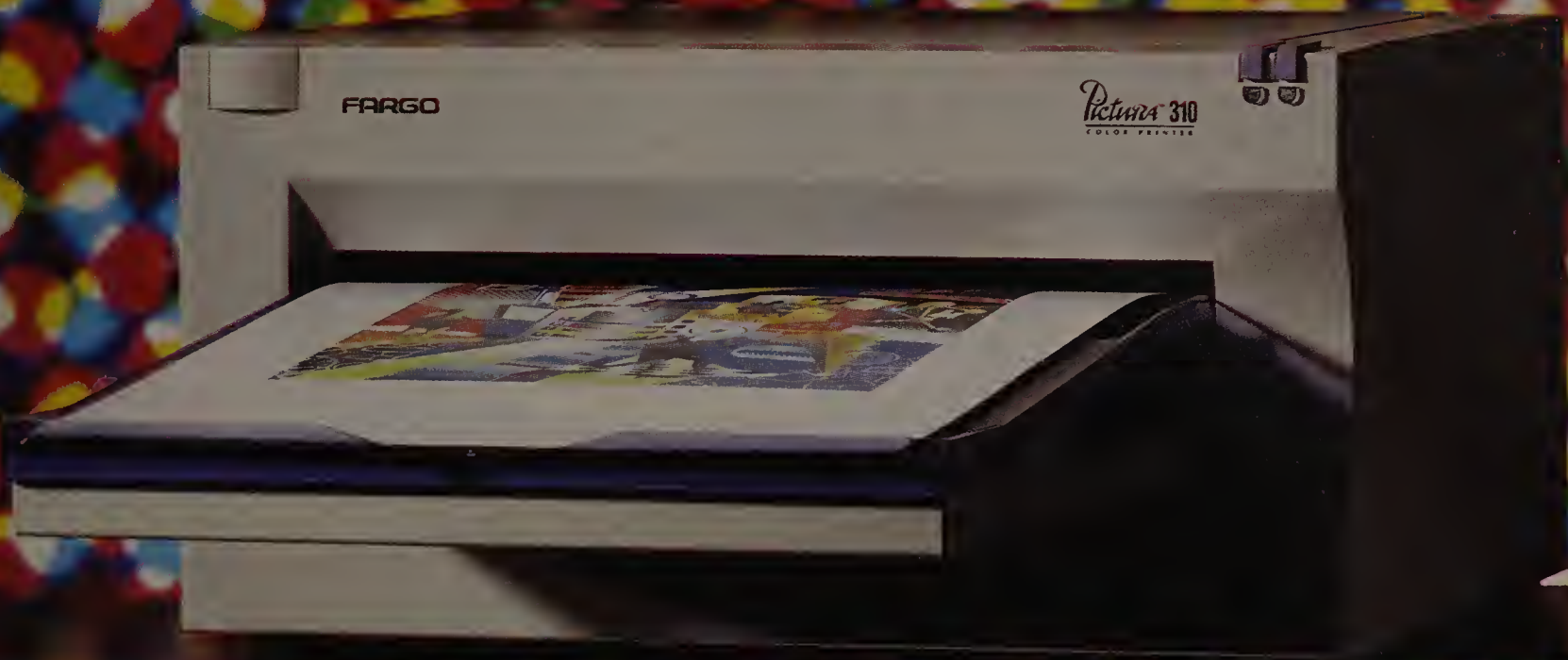
From low-end ink-jets to tank-size printing presses, all color printing devices produce their spectrum of hues by applying three primary colors—cyan (C), magenta (M), and yellow (Y)—in varying amounts. Most devices also support a black (K) pigment, which yields richer blacks than mixing C, M, and Y.

Like a thermal-wax printer, a dye-sub machine contains a roll of thin plastic ribbon, which bears panels of colored dyes. Most of the printers we tested let you use either a four- or three-color ribbon. The latter lacks a K panel; the printer uses equal amounts of C, M, and Y pigments to produce black. Printing with a three-color ribbon is faster and, because it provides more prints per roll, less expensive. On the downside, black areas can appear brownish.

In the printer the ribbon is sandwiched between the paper and a print head containing thousands of heating elements, each of which produces 256 different temperatures (64 color "degrees" for each of the three primary colors and black). When a heating element is on, the dye beneath it turns from a solid into a gas—it *sublimates*—and diffuses into the paper's polyester resin coating, producing a single dot.

The amount of dye transferred depends on how hot the





FROM FONT TO BLACK No matter what your color printer budget, there's a foolproof choice for you: Fargo's Pictura 310 (top) starts at under \$5000 and 3M's high-end Rainbow 2720 (bottom) starts at \$18,500.

heating element is. This ability to apply varying amounts of pigment is one cornerstone of a dye-sub's continuous-tone capabilities. And as the dyes for one dot diffuse, they blend into neighboring dots, eliminating the distinctly visible dots that plague other printing technologies.

To simulate colors other than C, M, Y, or K, most color devices (including printing presses) must apply fine dot patterns of these primaries. A dye-sub printer, however, can blend its dyes, creating pure colors devoid of dot patterns. This capability enables dye-sub to print images with photographic realism, and introduces some unique issues.

Take resolution. Among thermal-wax and laser color machines, resolutions of 600 dots per inch (dpi) and greater are now common (see "Color Printers Mean Business," *Macworld*, September 1995). Most dye-sub, however, are still in the 300-dpi league. Of the machines tested, the exception is General Parametrics' SpectraStar DSx, with a 600-by-300-dpi mode. You might expect this relatively coarse resolution to yield coarse-looking photographic images—the kind you would see from a 300-dpi thermal-wax color printer, for example. Not so, thanks to a dye-sub's freedom from halftone dots (see the illustration, "Dye-Sub's Colorful Characters"). In our tests, printed

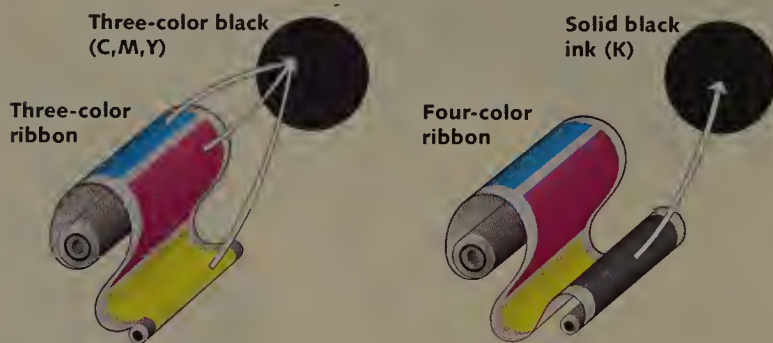
tence in 6-point type costs just as much to print as one with a spectrum of colors. This is because dye-sub (and thermal-wax) printers use a full set of ink panels for every page, regardless of the page's contents. This approach contrasts with that of laser, solid-wax, and ink-jet printers, whose operating costs vary depending on how much pigment you use on each page.

Although thermal-wax and dye-sub machines operate similarly, dye-sub consumables are much more expensive. If you can live with lower-quality, thermal-wax output for rough proofs, consider the Fargo Pictura 310 or Seiko Professional ColorPoint 2. Both accept thermal-wax as well as dye-sub media, and the former costs a fraction of the latter—\$1.60 per thermal-wax print for the Pictura 310, for example, compared with \$6.50 per dye-sub print, based on the companies' estimates for consumable costs.

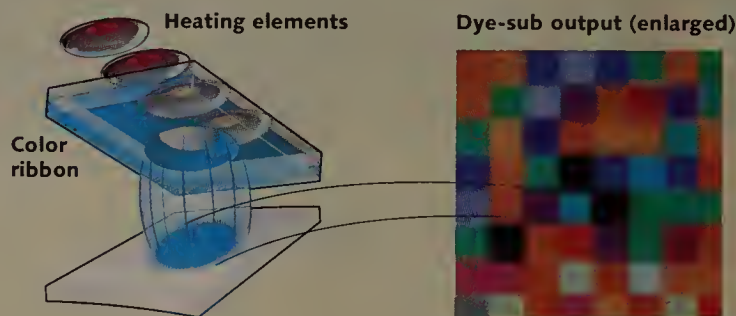
Both the Seiko and Fargo also offer an array of unique thermal-wax media options, including stock for making your own iron-on fabric transfers. General Parametrics offers a similar stock for the SpectraStar DSx. 3M's Rainbow is unique in that it accepts peel-and-stick stocks. Available in clear and opaque white, these stocks are popular among package designers, who use them to create mock-ups for client approval, commercials,

DYE-SUB'S COLORFUL CHARACTERS

Better Blacks Printers that offer a black pigment (K) give you richer blacks than printers that create black by mixing cyan, magenta, and yellow (C,M,Y). Printing with a three-color ribbon is faster and less expensive, but you won't be as pleased with black areas.



Continuous Color Under the heating elements, the ribbon's dye turns from a solid to a gas, which then diffuses onto the paper in a single square. When the dyes diffuse into single squares, they overlap into a continuous tone, giving a smoother appearance than with other printing technologies.



photographs looked just as sharp on the 300-dpi Pictura 310 as they did on the 600-by-300-dpi SpectraStar DSx. Higher resolution does make a difference in text and in line art such as Adobe Illustrator or Macromedia FreeHand drawings. But resolution shouldn't be the first specification you look at.

The Price You Pay

Start instead by deciding how large a page you want to print. Most of the printers we tested can print on paper slightly larger than 11 by 17 inches (super B), enabling you to proof a tabloid-size page or a two-page, letter-size spread containing bleeds (areas that extend to the edge of the paper).

But tabloid-capable printers cost much more than their letter-size siblings. A Radius ProofPositive Two-Page printer sets you back \$13,999 while the smaller Full-Page model costs \$6499—and can still print an 8½-by-11-inch page with bleeds and crop marks. (General Parametrics' SpectraStar DSx can also print an 8½-by-11-inch page with bleeds.) Tabloid-size output also costs more—with the 3M Rainbow 2720, almost \$8 per tabloid page compared with about \$5 per page for letter-size output, and with the Fargo Pictura 310, almost \$7 per tabloid page compared with \$4 per letter-size page.

Speaking of operating costs, it's worth noting that they're consistent from page to page—a page containing one black sen-

and photo shoots; good thing they're a deductible expense—5 sheets go for \$35, and 25 sheets for \$150.

The Price of PostScript

Another factor that influences a printer's cost is the design of its controller, the portion of the printer that communicates with the Mac and presides over the print mechanism. Because of PostScript's prevalence in publishing, we required that a printer support PostScript to be eligible for testing.

All eight machines do, but not in the same way. While most of the printers contain built-in PostScript interpreters containing RISC processors, ROM-based fonts, and many megabytes of RAM, some—Fargo's Pictura 310, Radius's ProofPositive series, and 3M's Rainbow 2720—use Adobe Systems' Configurable PostScript Interpreter (CPSI), a server program that runs on a Mac. CPSI turns a Mac into a PostScript controller: the Mac converts the PostScript commands that describe a print job, generates a bit map, and then transmits it via a SCSI or parallel cable to the printer.

CPSI can run on a Mac Quadra 950, but we recommend a Power Mac. (We used a Power Mac 7100/80 with 40MB of RAM.) CPSI requires a minimum of 6MB of application RAM, but this theoretical amount yields slow performance. We allocated 24MB of RAM; it isn't unusual to see service bureaus allo-

COMPARING COLOR QUALITY



3M RAINBOW 2720

3M Rainbow 2720

Our overall choice for best high-end printer scored in the top three in each of our output tests. Although the judges criticized it for some banding in this Illustrator test, they were impressed by how it handled color.



TEKTRONIX PHASER 480X

Tektronix Phaser 480X

If money is no object for your color output, then you'll love the Tektronix Phaser 480X as much as the judges in our Illustrator-output test did. They praised its color and its ability to blend without banding. It starts at just under \$15,000, but it works best with significantly more RAM than it comes with.



MATCHPRINT



FARGO PICTURA 310

Fargo Pictura 310

The under-\$5000 Fargo printer took first honors in the judging of Adobe Photoshop color output, impressively surpassing the expensive Tektronix Phaser 480X. The Pictura 310 is not such a demon when it comes to speed, but it's our choice for a low-end dye-sub printer.



MATCHPRINT

cating up to 96MB. You don't have to dedicate the Mac to its PostScript duties—if it has enough RAM, you can run other programs along with CPSI. You can configure the CPSI Mac to receive print jobs from other computers on your network, and with the Fargo and Radius machines, you can print from application programs running on the CPSI Mac. With the 3M Rainbow, in order to print jobs from programs running on the CPSI machine, you must print them to disk as PostScript files and then process them through CPSI—a less convenient approach.

If you take the latter approach, we don't recommend burdening the CPSI Mac with a complex program such as QuarkXPress or Adobe Photoshop—performance will slow dramatically. Many large graphics departments and service bureaus run CPSI on a Mac that also does occasional duty as a scanning workstation. In any case, CPSI's need for a well-endowed Mac increases the final cost of these printers, particularly if your print volume demands a dedicated CPSI Mac.

Other Hidden Costs

Many printers have additional costs that do not show up on the price tag. With the Fargo Pictura 310, PostScript itself is one: the printer's base configuration doesn't include PostScript. For the Pictura 310, CPSI is \$799 extra. (Fargo recently announced the Pictura 310e, which includes both CPSI and color-matching software.)

The Tektronix Phaser 480X's hidden costs deal with mem-

Driver Details

All of the printers tested have drivers for both the Mac and Microsoft Windows. Tektronix earns extra points by providing a dual-platform CD-ROM containing drivers and a battery of utilities—every other machine offers a half-dozen floppies, one of which often manages to escape to the same place lost socks go. General Parametrics loses points by providing a crude installation program that doesn't store the driver and its support files in the proper places in the System Folder.

Most of the printers include LaserWriter 8.1 or a later version. The Tektronix Phaser 480X and Radius ProofPositive Two-Page, however, offer LaserWriter 7.1.2. This older driver and its version 8 successors work differently. LaserWriter 8 uses a two-pass printing method that enables some flashy features but can slow printing and significantly increase the amount of disk space pending print jobs require. For this reason, many color printer users who print large scanned images prefer LaserWriter 7, which doesn't use the two-pass approach. (Adobe PageMaker users have no choice, since PageMaker version 5.0 and above requires LaserWriter 8. However, PageMaker performs some behind-the-scenes tricks to disable LaserWriter 8's two-pass scheme.) To avoid driver-related disparities, we used LaserWriter 8.2 for all performance testing.

Many of the printers tested also include a Photoshop export module, which bypasses the LaserWriter driver and sends an image's CMYK or RGB data directly to the printer. This speeds

DETAILS, DETAILS



Hot Pockettes You can expand your networking and storage options with cartridges from General Parametrics called Pockettes; this LAN cartridge supports eight network protocols.



Go for a Drive Need to download large files? Radius's ProofPositive printers let you attach an interface box that connects to a hard drive, improving throughput for workgroups.



Stick It to 'Em 3M's Rainbow 2720 is the only dye-sub printer to handle peel-and-stick output, which designers love for making product mock-ups for clients.



A Helpful Caddy Seiko puts its ink sheets in a removable caddy so you can easily switch its dual-mode Professional ColorPoint 2 between thermal-wax and dye-sub output.

ory. The printer's base configuration includes 32MB, which isn't enough to print using the four-color ink ribbon. (Even if you install a four-color ribbon, the printer skips the black panel, instead creating blacks by combining C, M, and Y inks.) You need at least 48MB to print in full CMYK, so add \$1195 to the printer's \$14,994 base cost. And that's not all. The Phaser 480X, like the Radius and 3M machines, has advanced proofing options that let you proof traps and overprints. But to use them, the printer needs a whopping 96MB of RAM—roughly \$3200 worth of chips above the base 32MB.

Equipping a printer with appropriate ports can also add to its cost. More than half of the printers tested include LocalTalk ports, but if you have a large network or you plan to print scanned color images frequently, we strongly recommend using Ethernet instead—it's much faster.

Of the printers tested that contain PostScript controllers, most offer Ethernet ports as an option. Ethernet is an extra-cost option for the General Parametrics SpectraStar DSx. The ProofPositive and Rainbow machines connect to the CPSI Mac's SCSI bus—if that Mac has Ethernet, the printer essentially has network access too. The Pictura 310 has a parallel port that connects to a NuBus parallel interface card included with the printer.

printing of Photoshop images. For example, a CMYK image that took 6 minutes and 35 seconds to print on a Tektronix Phaser 480X using the LaserWriter driver took just 5 minutes and 19 seconds through the Tektronix export module. The CPSI-based 3M Rainbow and Radius ProofPositive Two-Page showed even more significant gains.

Most of the export modules we tested provide similar features, but we did find rough edges in two. Seiko's requires you to use a SCSI connection—you can't use the export module to print over a network, as you can with all the other tested printers. And General Parametrics' requires you to change a setting on the printer's front panel.

Performance and Output Quality

To test the performance of each printer, Macworld Lab ran a variety of tests using typical publishing-oriented documents (see the benchmark "On Deadline: Benchmarking Printers for Publishing"). Among dye-sub machines that print tabloid-size pages, the Tektronix Phaser 480X finished first in every test. The two letter-size machines—from General Parametrics and Sony—traded places for first place in their class.

Speed is important, but output quality is paramount. To judge it, we assembled a team of 11 *Macworld* editorial and art

COMPARING TEXT QUALITY

Integration
Of the four

GENERAL PARAMETRICS SPECTRASTAR DSX

your multicolumn word processor document? How much trouble is it to place linked columns of text into a draw document to do basic page layouts?

Integration

Of the four, ClarisWorks provides the fastest and most seamless integration. You can drop a spreadsheet right into a word

General Parametrics

SpectraStar DSx

Frequently a runner-up in our speed tests, the SpectraStar DSx aced the text-output scores. Judges praised the text selection for its crisp text and superb registration.

Integration
Of the four

LEXMARK COLOR JETPRINTER 4079 PLUS

your multicolumn word processor document? How much trouble is it to place linked columns of text into a draw document to do basic page layouts?

Integration

Of the four, ClarisWorks provides the fastest and most seamless integration. You can drop a spreadsheet right into a word

Lexmark Color Jetprinter

4079 plus

We were a little leery of pitting an ink-jet printer against dye-sub, so imagine our surprise when the judges of our text-output tests ranked it second. It did fare poorly as expected in color output, but if your work is primarily text-oriented, it's worth checking out.

department staffers. Each judge compared three different printouts against photographic proofs of the original images, looking at highlights, shadows, color accuracy, and text (see the output samples "Comparing Color Quality").

The winners' circle contains some interesting occupants. In the Photoshop image test, the CPSI-driven Fargo Pictura 310 took first place, beating machines that cost several times more. This is quite an accomplishment, not only because of the price differences, but because Fargo's earlier machines stressed economy over output quality. Still, the Pictura 310's blue ribbon has a qualification dangling from it: our lab analyst spent much time color-correcting the particular printout that carried the Pictura 310 to the finish line (he used Agfa's FotoTune color-

matching software). An uncorrected version of the same print didn't fare as well with our jury. Still, it's clear that an experienced operator with good color-matching software can get stunning images from this bargain-basement dye-sub. Other strong finishers in the Photoshop test included Tektronix's Phaser and 3M's Rainbow.

Our second test was of a complex Adobe Illustrator drawing. The Phaser 480X finished first this time, followed by the SpectraStar DSx. The SpectraStar's 600-by-300-dpi mode helped greatly in this test. The 3M Rainbow and Radius Proof-Positive Two-Page also fared well. The CPSI-based Fargo Pictura 310 fell to the middle of the pack this time, but still ranked ahead of the Seiko Professional ColorPoint 2, the Sony UP-

IS INK-JET AN ALTERNATIVE?

Low-cost ink-jet printers are second-best proofing devices. They can't print continuous-tone images, so photographs and gradients have that dotted, dithered look. They also lack the range of proofing options that most dye-sub provide.

Ink-jet printers do have some pluses. As our output-quality jury found when evaluating the results from the \$3199 Lexmark Color Jetprinter 4079 Plus, ink-jet text output can be sharper than dye-sub text output. Still, most

ink-jet output looks mottled and fuzzy compared with high-resolution laser output. The Lexmark machine was also faster than some of the dye-sub. But this too is damning with faint praise—ink-jet and dye-sub printers are among the slowest printing technologies available.

Unlike dye-sub, however, ink-jet printers can print on plain paper. The ability to print a mock-up on the same type of paper you'll use for the final job could be helpful.

The Lexmark machine's

color-matching features are adequate for casual proofing only. The printer provides no press-matching features, although it does support Apple's ColorSync 2.0 color-management system. Also, while the printer supports tabloid-size paper, it can't print bleeds at this size.

Another PostScript-based ink-jet alternative is Tektronix's \$1395 Phaser 140 (see *Reviews*, April 1995). The Phaser 140 doesn't support tabloid printing, but it does provide some basic press-

matching features. And it's the least expensive color PostScript printer available.

In the end, though, I can't recommend any low-cost color ink-jet printer for serious publishing work. Both the Lexmark and Tektronix machines are suitable for rough proofing, particularly of jobs containing simple spot color. But if you need more and you're on a tight budget, save your lunch money until you can afford a Fargo Pictura 310. Or continue using a local service bureau.

COMPARING DYE-SUB CONTENDERS

Company	Phone	Product	List Price	Company's Estimated Street Price	Ports (standard/ optional/all active)	RAM (minimum/ maximum)	SCSI Port for Font Storage	Fonts
3M Printing and Publishing Systems	612/737-6501	Rainbow 2720	\$18,500	\$16,500	SCSI/ ^B /NA	NA ^B	^B	13
Fargo Electronics	612/941-9470	Pictura 310	\$4995	\$3995	P/NA/ no	NA ^B	^B	0
General Parametrics	510/524-3950	SpectraStar DSx	\$7695	\$6500	L, P, S/E/yes	16MB/96MB	optional	52
Lexmark International	606/232-2000	Color Jetprinter 4079 plus	\$3199	\$2699	L, P/E, T/yes	4MB/96MB	no	39
Radius	408/245-2202	ProofPositive Two-Page	\$13,999	NP	SCSI/ ^D / NA	NA ^B	^B	17
Seiko Instruments	408/922-5800	Professional ColorPoint 2	\$14,999	NP	L, P, S/E/yes	24MB/136MB	yes (includes drive)	135
Sony	201/930-7796	UP-DB800	\$8800	NP	E, L, P/NA/yes	32MB/128M8	yes (includes 120MB drive)	35
Tektronix	503/682-7377	Phaser 480X	\$14,994	NP	L, P, S/E/yes	32M8/112M8	yes	39

Technical-support ratings are based on a series of calls made to each company by Macworld staffers (posing as customers) to gauge the accessibility, helpfulness, and accuracy of the company's final ratings. Ratings are for companies, not individual products, and we call only those companies whose products Macworld Lab tests. E = Ethernet; L = LocalTalk; NA = not applicable; NP = no printer. ^B These printers rely on a separate font cartridge that is available to the printer. ^C We could not test tech support because we could not preserve the anonymity of our callers. ^D ProofPositive models without PostScript are also available for \$4999.

D880, and the Lexmark Color Jetprinter 4079 plus. Our final output-quality test was a QuarkXPress document containing text—specifically, a page from *Macworld*. The first-place finisher this time: the General Parametrics SpectraStar DSx. The 600-by-300-dpi mode gives this printer dramatically better text quality than the other machines we tested. The lowly Lexmark Color Jetprinter 4079 plus turned in a strong second-place finish in this test—proof of just how fuzzy most dye-sub text is. The 3M Rainbow 2720, Tektronix Phaser 480X, and Radius ProofPositive Two-Page were virtually tied for third. Last-place finishers were the Sony UP-D8800 and the Fargo Pictura 310. The latter's text output was particularly bad—

small sizes were nearly invisible, and the thin portions of serif characters were often missing.

The Proof Is in the Proof

Jury ratings tell only part of the output story. If you plan to use a printer as a prepress proofing device, it's also important to evaluate the proofing options it provides. These options fall into two broad categories: features that let you tweak the printer's output to match the results provided by various printing technologies, and features that enable you to proof color-printing techniques such as trapping and overprinting.

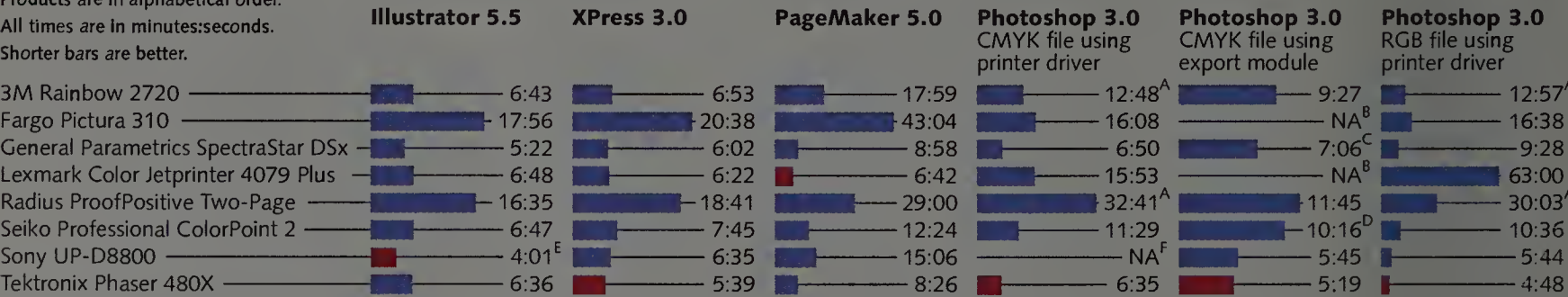
Most of the dye-sub printers tested provide at least a few



ON DEADLINE: BENCHMARKING PRINTERS FOR PUBLISHING

When you're about to go to press, you want a dependable workhorse. All of the printers we tested did at least one thing really well. Even the ink-jet printer that Lexmark dared us to compare to the seven dye-sub printers surpassed them when it came to printing an Adobe PageMaker file; the Lexmark also did well in our judging panel's subjective rating of its text output. At the other end of the scale, the Tektronix 480X turned in excellent results in both objective and subjective tests—but not in the pocketbook poll; it's one expensive piece of technology.

■ Best result in test.
Products are in alphabetical order.
All times are in minutes:seconds.
Shorter bars are better.



^A24MB allocated to CPSI; 16MB allocated to CPSI when printing Photoshop file via printer driver. ^BNo plug-in module available. ^CPrinter set to Raster mode. ^DNeed SCSI hookup for plug-in operations. ^EResult obtained with extensions off. ^FPlug-in doesn't support CMYK file format in Photoshop.

BEHIND OUR TESTS

Macworld Lab gauged the printer speed with various documents designed to test performance from different perspectives. The Photoshop tests measured the printer's ability to handle large bitmapped images, as well as network interface performance. We ran both RGB and CMYK tests using the Mac's PostScript driver and the Adobe Photoshop Export module, which both accompany most of the tested printers. The page-layout test used a QuarkXPress document with five downloadable fonts of different sizes on the first page, and a 3MB graphic on the second. We also included an Adobe PageMaker 5.0 document that had gray-scale and color TIFF files. These tests, which gave the printers a good overall workout, demonstrate how well each machine handles typical publishing jobs. The Adobe Illustrator document tested the performance of a PostScript printer's controller. With host-based systems like those of 3M and Radius (which use Adobe's Configurable PostScript Interpreter), Macworld Lab allocated 24MB to the controller. The speed of raster image processing should be faster with increased memory, since more parts of the image can be processed at once (the application will divide the image into portions to fit inside the allocated RAM).

—Macworld Lab testing supervised by Mark Hurlow

Paper Sizes	Ribbons Supported	Cost per Page ^A	Technical Support
super A, super B	CMYK	\$7.67	excellent
super A, super B	thermal CMYK and K; dye-sub CMYK	\$6.60	not rated ^C
A, A4, super A	CMYK, CMY, K	\$3.08	very good
A, A3, A4, B, legal	NA	NA	acceptable
A, A3, A4, B, super A, super A3, super A4, super B	CMYK, CMY, K	\$7.23	acceptable
A, super A3	CMYK, CMY, K	\$8.40	excellent
A, super A4	CMYK, CMY, K	\$2.30	unacceptable
A, A3, A4, B, super B	CMYK, CMY, K	\$7.72	acceptable

support technicians. Macworld uses a point system, including bonuses and demerits, to derive the provided; P = parallel; S = serial; T = Token Ring. ^A Cost per tabloid-size page (except for General host Mac to process print jobs and store fonts. Any network interface available on the host Mac (Full-Page) and \$11,999 (Two-Page).

color-matching options: the ability to match the screen, to punch up the color for business graphics, and to simulate one or two printing standards, for example. The two exceptions are the Sony UP-D8800 and the Fargo Pictura 310, which have no matching options. (As mentioned earlier, however, you can use third-party matching programs such as Agfa's FotoTune with the Fargo machine, and the new Fargo Pictura 310e includes color-matching software).

For advanced proofing, the selection boils down to three machines: 3M's Rainbow 2720, Radius's ProofPositive Two-Page, and Tektronix's Phaser 480X. These printers provide a much broader range of color-matching options targeted to the printing industry. Of the three, the Rainbow provides the largest array of options—not surprising, given 3M's major presence as a manufacturer of films and offset plates for the printing industry. When you use the matching options that correspond to 3M Matchprints, the Rainbow even gives printouts the slight beige cast that real Matchprints have.

Color matching is one thing; color consistency is another. Ink ribbons can vary from one lot to the next, and high-end printers provide calibration features that enable you to adjust the printer's color rendering to compensate for variations. The Rainbow's CPSI app lets you fine-tune calibration settings; 3M also has a free bulletin board from which you can download recommended settings for various ribbon lot numbers.

The Tektronix Phaser 480X has equally impressive calibration options. Its included PhaserMatch utility lets you color-calibrate the printer by printing test documents containing clusters of gray shades and then entering values in PhaserMatch.

Finally, there's the ability to proof color separations as well as traps and overprints. In last year's roundup, only the 3M Rainbow could proof traps and overprints. Now, the Tektronix Phaser 480X and Radius ProofPositive Two-Page have joined it. All three machines can proof color separations and print files in the desktop color separation (DCS) format. Remember, however, that the Phaser 480X requires 96MB of RAM in order to provide these functions, while the 3M and Radius machines provide them right out of the box.

It's also worth noting that the \$6499 Radius ProofPositive Full-Page—the junior version of the Two-Page model we tested—is the only letter-size dye-sub printer that provides these advanced proofing options. If you need overprint-, trapping-,

and DCS-proofing features and most of your work involves letter-size pages, buy this machine. The ProofPositive Full-Page can print letter-size bleeds, and you can always tape two pages together for those times when you want to proof a two-page spread. The \$7000 or more you'll save will buy a lot of tape.

The Last Word

Almost any of the dye-sub printers we tested will meet the needs of the casual color proofer—the publisher who needs high-quality proofs for client approval. I hesitate to recommend the Sony UP-D8800 for publishing applications, however. While it's an excellent printer for digital photography, video-imaging, and presentation applications, the Sony's lack of color-matching options makes it unsuitable for prepress work.

At the low end, the Fargo Pictura 310 takes first place. You'll need color-matching software and CPSI and some experience to get first-rate results from this printer, but it can provide them. Still, you don't get what you don't pay for: the Pictura 310's text quality is very poor.

At the opposite end of the text-quality scale is the General Parametrics SpectraStar DSx. This fast letter-size printer is an excellent choice for presentation-oriented work and casual proofing. For advanced prepress proofing, however, the Radius ProofPositive Full-Page is a better choice. It also costs less, although you will need a Mac to run its CPSI application.

As for the high end, the 3M Rainbow 2720, Tektronix Phaser 480X, and Radius ProofPositive Two-Page are all excellent printers. The edge, however, goes to 3M's Rainbow 2720, which provides the widest array of proofing options. (A version 4.0 software update, which is due by the end of 1995, will provide even more, adding, among other things, support for eight-color printing.) Among prepress houses, the Rainbow has earned a reputation as an industry standard—it isn't unusual to see shops advertising Rainbow proofs instead of dye-sub proofs.

Using a dye-sub printer as a final proofing device is most appropriate for low-budget, tight-deadline color jobs such as catalogs and newspaper inserts: areas where savings of time and money are more important than quality. Still, a dye-sub can earn its keep in quality-obsessed environments by reducing the number of photographic proofs you make while preparing a job. Using dye-sub proofs for most iterations and making just one or two photographic proofs at the final stages saves not only money but also time—two things a publisher can never have too much of. **m**

Contributing editor JIM HEID is a former typographer and has taught electronic publishing courses. He is the author-producer of the BMUG Choice—award-winning book (with CD-ROM), *Macworld New Complete Mac Handbook*, fourth edition (IDG Books Worldwide, 1995).

DYE-SUB PRINTERS



With dye-sublimation printers, output quality and strong proofing options are essential—but price counts, too.

Low End

Fargo Pictura 310 You'll need color-matching software and experience to get the best color from this machine—and you'll still suffer with substandard text. But there's no cheaper B-size dye-sub. **Company:** Fargo Electronics. **List price:** \$4995 (with CPSI \$5794).

High End

3M Rainbow 2720 The broadest range of proofing options, terrific new peel-and-stick media, and excellent output quality make the Rainbow the printer to buy for the most advanced proofing needs. **Company:** 3M Printing and Publishing Systems. **List price:** \$18,500.

ACCOUNTING FOR GROWTH

%

You've done it. You've beaten the odds.

Your business has made it through those

hazardous first two years and is growing

strong. You've been through lots of

changes, and now it's time to make one

more. That's right: the entry-level ac-

counting program that took you through

the early days just can't cut it anymore.

Some businesses can use an entry-level accounting system indefinitely, but for most, growth brings problems sooner or later. Some examples: You now have several employees entering accounting data and they need simultaneous access to the accounting records, which requires multiuser capabilities and also raises questions about the privacy and security of your financial data. Or your company is operating in multiple locations and you need separate accounting reports for each location. Or the system is simply slowing down under the burden of increasing numbers of transactions on file.

Midrange systems are designed to deal with these problems. In a nutshell, they offer multiuser capabilities, enhanced data-access control, more efficient data entry and transaction processing, and more flexible reporting capabilities.

In this article I review five leading midrange accounting systems. All com-

YOU'VE OUTGROWN YOUR ENTRY-LEVEL PROGRAM—NOW WHAT SHOULD YOU USE?

ply fully with generally accepted accounting principles, and each offers specific benefits for certain types of businesses.

The five are Satori Software's Components 1.2 (G/L, A/R, A/P \$795 each; Job-Cost/Time-Billing \$1495); EveryWare Development's Connected 2.8 (G/L-A/R-A/P \$895; Inventory \$1690; Job-Costing \$1690; multiuser G/L-A/R-A/P \$1795; multiuser Inventory \$2695; multiuser Job-Costing \$2695); State of the Art's MacP&L 4.0 (\$199; multiuser \$399); CheckMark Software's Multi-Ledger 4.0 (\$199); and Peachtree Software's Peachtree Accounting for Macintosh 2.5 (\$99). I also take a look at two specialized packages: CheckMark's Payroll 5.4 (\$149), a payroll module designed to work with most other accounting packages, and Ensign Systems' POS•IM-Premier 2.7, a point-of-sale system (\$1795; multiuser \$2495. For more on POS•IM, see the sidebar "Impulse Shopping: Why Point of Sale?"). In addition,

two entry-level products, BestWare's M.Y.O.B. 5.0 and Intuit's QuickBooks Pro, are actually superior to the midrange products in some functions, so I mention those where appropriate.

State Your Business

So how do you choose an accounting system that's right for you? The trick is to match the package to the needs of your business and the abilities of your staff. Your type of business—retail, manufacturing, or service—plays a big role in deciding which features are important.

Retail and Wholesale These businesses live by their inventory and require a system that can track not just items on hand, but items on order and customer back orders as well. Wholesalers often need multiple prices for each item, to reflect the range of discounts they offer their customers. To keep inventory records current, many companies integrate point-of-sale systems with their inventory management. To analyze sales and determine which products are generating the profit, retail businesses require flexible, customizable reporting capabilities. If salespeople earn commissions, the sales system needs to report on each individual's sales. In addition, the payroll system must incorporate commissions with earnings. MacP&L and Connected handle back orders well and allow for pricing that varies depending on the customer. If you don't need multiuser capabilities, consider looking at entry-level packages: M.Y.O.B.'s back-order capabilities are hard to beat.

BY JAN GILLESPIE

Mar 9, 1952

181

Earl

59.9 A. E. Smiley
To 1 hat

4.00
2.00

D. M. Stout
To 1 suit

75

To 1 suit

150

To 1 suit

25

To 1 suit

25

To 1 suit

25

To 1 suit

25

543 James Calhoun
To 1 suit

128 James Williams
To 1 suit

1.50

119 Oliver Green
To 1 4 in hat

2.00

To 1 4 in hat

John Butts
To 1 suit

50

To 1 suit

05

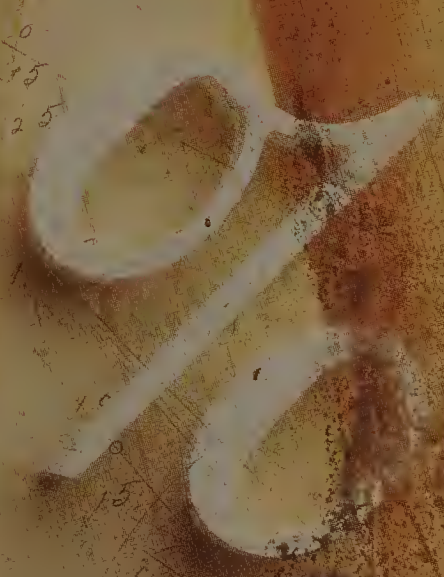
82 Chas. Carter
To 1 4 in hat

15

To 1 4 in hat

Wm. Carson
To 2 work shirts

1.50



95 Jess Harns
To 1 4 in hat

1.00

To 1 4 in hat

88 Bert Simpson
To 1 suit

75

To 1 suit

75 Jim Dunsen
To 1 4 in hat

1.00

To 1 4 in hat

Wm. A. Povey
To 2 collars

1.00

To 2 collars

To 1 4 in hat

throughout the world

U.S.A. Order No.

1.00
1.85
4.41

Manufacturing Manufacturers have even more formidable inventory-management requirements than retailers and wholesalers. Besides keeping track of completed inventory, manufacturing businesses need to translate component parts into finished units. Most midrange inventory systems automatically generate purchase orders, which manufacturers can use to verify invoices from their suppliers. Manufacturing businesses that work on custom orders need a system that can generate the initial estimate or quote for a job and track revenues and expenses for each job or project. Finally, since manufacturing businesses typically extend credit to their customers with a variety of discounts and payment terms, the invoicing

and receivables system needs to accommodate these options. For manufacturing, the entry-level products are quite good, though they won't be able to grow with your business. M.Y.O.B. and QuickBooks Pro both have excellent job-costing systems; produce quotes; and can generate an invoice based on a quote. MacP&L offers the same capabilities in a multiuser environment. QuickBooks Pro can also generate invoices based on a job's costs.

Service Businesses Service businesses typically have little or no inventory to worry about, but keeping track of payroll costs and billing for services rendered are critical. Many service businesses simply bill for services at a fixed rate; their accounting systems do little more than cre-

ate invoices and, if they extend credit, maintain accurate customer records. Professional-services businesses, however, have extensive time- and cost-billing requirements. These companies need a system that tracks payroll and other costs by job and task and that invoices clients at cost or at a specified markup. In addition to tracking and billing current costs, many service businesses prepare quotes to bid on jobs. All the products reviewed here meet the minimum needs of a service business. Businesses with more complex billing and invoicing needs should look at Components' highly customizable Job Costing/Time Billing module. Connected and QuickBooks Pro also offer these capabilities but are not quite as flexible.

IMPULSE SHOPPING: WHY POINT OF SALE?

If you ever sit down with a stack of inventory sheets to figure out what sizes and colors of your stock to reorder, or wonder how much stock you really have on hand, maybe

you should consider a point-of-sale system. Point-of-sale systems record each sale when it happens—not when the bookkeeper has time to enter it. Inventory records are always up-to-date, and you have much more information about the sale than you could gather with a manual system, so you can make better decisions about ordering and merchandising (see the screen shot "Information Capture").

Using a point-of-sale system is not without its costs, however. Installation requires careful coordination among technical, accounting, and operations staff. Each inventory item must be uniquely identified, counted, costed, and entered into the system as you switch over, and you must be scrupulous about tracking inventory received and sales.

POS•IM-Premier (Ensign Systems' point-of-sale/inven-

tory-management software; single-user version \$1795, multiuser \$2495) provides point-of-sale data-capture, inventory-management, and accounts-receivable capabilities for single or multiuser environments. If your computers are not networked, or they're at more than one location, POS•IM can integrate

straightforward and easy to use. It provides numerous payment options, and it handles rentals as well as sales. It also makes returns, back orders, and cash payouts simple. It can produce an almost endless variety of sales reports (by item, by salesperson, by vendor, by date, and so on), as well as end-of-day cash-

all the basic A/R functions adequately.

The Inventory Analyzer module is POS•IM's greatest strength. The system tracks inventory items and suppliers, and generates purchase orders, receiving reports, and a wide array of inventory-management reports. A variety of pricing methods are available, including add-on amounts, percentage of cost, margin percentage, and custom formula. You can set up to seven prices for each item.

POS•IM is not a complete accounting package, but you can integrate its data into other accounting systems, including MultiLedger and Connected, using POS•IM's export facility or a separate module called Accounting Interface Module (single-user \$95, multiuser \$135).

POS•IM's installation manual is good, but its user manual is not. Though POS•IM's interface is logical and easy to use, the system is complex, and its weak documentation can be frustrating.

Overall, POS•IM is an easy-to-use, comprehensive point-of-sale system from which you can derive valuable information. There are few point-of-sale needs that it can't meet.

Qty	Item ID	Description	Price	Extended	Tax
1	3510	Home Power Tools-100	5.95	5.95	
1	1019	Advanced Accounting	29.95	29.95	
1	1016	Accountant's Desk	89.50	89.50	
				Total	125.40

Information Capture While POS•IM produces invoices on your Macs, it is gathering the information you need to keep the shelves full and the warehouse empty.

data from stand-alone machines into a central database. POS•IM supports electronic cash drawers, bar-code readers, credit card readers, and receipt or invoice printers; less comprehensive and less expensive versions of POS•IM are also available.

The Sales Point module is

reconciliation worksheets. In-house charges post to the Accounts Receivable (A/R) module, which tracks payments on account, assesses interest charges, and generates customer statements and aging reports. Though the A/R module doesn't have lots of bells and whistles, it performs

What Your Business Needs

The kind of business you run will determine the kind of accounting system you choose, but there are many capabilities that just about every business needs in some capacity.

Security You need to hide your data from unauthorized eyes. Even single-user systems should use passwords to control access to accounting records. If more than one person enters your accounting data, you need control over who can access individual data entry screens and reports. Connected, MacP&L, and M.Y.O.B. offer protection down to the screen or menu-item level; the other programs offer protection either by module or by functions, such as data entry, reporting, account creation, and so on.

Recurring Entries Everyone has at least a few entries that come up every month and never change. Paying on a mortgage or recording depreciation are examples of recurring entries. At a minimum, your system should recall these entries so you don't have to reenter them each month. Better yet is a calendar system that sets up to-do lists and tickler files to remind you to process those entries. Best of all is a system that automatically processes preset entries on a specified day of the month. All the midrange products reviewed but MacP&L offer automatic recurring entries, as does QuickBooks Pro. M.Y.O.B. provides a calendar system.

Data In . . . In a forms-based data entry system, you or your staff enter accounting information in on-screen forms that resemble common business documents such as checks, invoices, and purchase orders. This shields you from accounting jargon and procedures such as debiting and crediting journals and ledgers, and makes data entry easier and less error-prone. All the midrange products reviewed offer forms-based data entry for most common transactions, but all require entering a debit/credit transaction in a journal for certain infrequent transactions.

If you need to customize the data entry forms—for example, to simplify them for untrained staff or to combine parts of several forms in one place for efficiency—you're out of luck: none of the accounting systems we looked at provide that capability. If this is critical for your business, you'll need to consider a high-end programmable system such as Great Plains Dynamics or Flexware.

. . . Information Out Your accounting system is only as useful as the information it provides. Though most programs do a creditable job on standard financial statements, many businesses need something nonstandard—some-

thing as simple as a report on one week's transactions instead of the whole month, or so complex it requires an entirely new report. Some packages that claim to offer customizable reports go only as far as letting you change the fonts—be sure that the program provides the customization you need. Here Components is the clear

age. Again, Components and M.Y.O.B. are the ones to look at.

Batch versus Interactive Processing

Batch systems allow you to enter transactions, hold them, and update the accounting records later. Interactive, or immediate-mode, systems update the database as you enter transactions. The advantages of batch processing include much faster performance, particularly in a multiuser environment; and the ability to print and review your transactions before you update the database, so you catch errors before they happen.

Interactive systems have the advantage of always keeping your accounting reports current. You don't have to remember to post transactions, and if you need accurate information about your customers, it is always available. All the midrange systems are batch-oriented except MultiLedger, which is interactive; Peachtree can run either way. The entry-level products process interactively.

Integrated Systems An integrated system—not to be confused with an interactive system—automatically updates all the accounting records affected by a transaction. For example, when you record a credit sale to a customer, the system increases the amount the customer owes you, reduces the inventory for the item purchased, and records the sale so that it appears in your income statement. This requires updating the databases for accounts receivable, inventory, and the general ledger.

In a nonintegrated system you would have to enter the transaction three times, once in each database—a lot of extra work, and a good opportunity to make a mess of your books.

MacP&L and MultiLedger, which include all the standard modules as a unit, are integrated systems. Accounting systems with modules sold independently are not always integrated—for example, Connected is an integrated system but Components is not (except through a cumbersome import/export routine).

Adding New Accounts The ability to create a new account—an inventory item, a vendor, a customer, or a G/L account, for example—while you're entering trans-

Job Estimate
Job #: 263 Name: Reception Room Remodel View by: Worksheet
Client Name: Bergeson P.O. #: 39832 Transaction:
Quote Date: 9/23/95 Quote Amt.: 7860.00 Orig. Estimate Amt.: 7860.00
Last Changed: 10/1/95 Maximum: 9000.00 Change Orders: 4050.00
Prepared By: F300 Fife, John Current Estimate: 11910.00
Phase: Planning
Costs Billable
Action# Description Qty Services Expenses Qty Services Expenses
conf Conference 1.00 60.00 1.00 60.00
design Design 7.50 150.00 5.00 300.00
Total Phase: 8.50 210.00 0.00 6.00 360.00 0.00

Job Estimate
Job #: 263 Name: Reception Room Remodel View by: Change Order
Date: 10/3/95 Change Order #: 3 Phase: Planning
Changed By: 0100 Gregory, Wilson Comment: redesign entry way
Costs Billable
Action# Description Qty Services Expenses Qty Services Expenses
design Design 3.00 150.00 3.00 250.00
Change Order History
Date Order# Phase Comment Qty Services Expenses
9/28/95 1 Planning per conversation with Bob 500.00 3500.00
10/1/95 2 Planning price increase 200.00 550.00
Totals: 0.00 0.00 4050.00

Costing a Job One of Components' strong points is its flexible job costing and time billing. The top screen shows some of the expenses that make up the first round of an estimate; the bottom screen shows some additional costs for changes requested by the customer.

Inventory Items
Type: Inventory Item No: S202 B"x11" Formfeed (2000 sheets) Commissionable: [X]
Vendor: 1012 Hardware Distributors Inc. Tax 1: [X] Tax 2: [X]
Purchase Cost: 20.00 Vendor Part No: Lead Time (in days): 0
Current Cost: 20.00 Minimum Qty: 25.00
Selling Price: 30.00 Reorder Qty: 25.00 Costing Method: FIFO
Cost of Sales: 51000-01-00 Unit of Measure: Kg Last S.O. Date: 0.00
Inventory: 13000-00-00 Warranty (mths): 0 Last P.O. Price: 7.00
Sales: 40000-01-00 Weight: 5.00 HTD Units Sold: 218.00
Inv. Clearing: 20000-00-00 Analysis Code: ACCES HTD Sales: 218.00
Location: P.O. S.O. On Hand Committed Available
1 0 00 0 00 93 00 0 00 93 00
2 0 00 0 00 0 00 0 00 0 00
Notes: Price Matrix
Modify Record First Prev Find Next Last Add Modify Delete Save Cancel

Complex Inventory Connected's inventory-management module provides some unique capabilities. Here, inventory is being tracked at multiple locations and you (or your accountants) can choose the costing method.

leader, with easy-to-use, flexible formatting tools for business and financial reports. Connected offers a report writer that is powerful but not especially friendly. M.Y.O.B. offers excellent document customization, but is less flexible for customizing reports.

Similarly, the ability to change how your data is printed on invoices, checks, purchase orders, and other forms is important. You can save a lot of money by using standard forms instead of those designed just for your accounting pack-

actions can save you time and frustration. All the products reviewed here except Connected incorporate this feature. MultiLedger's implementation is especially fast, and Peachtree's especially slow.

Job- and Project-Reporting The ability to get reports on revenues and expenses for something other than the company as a whole is essential for a business of any size. Job or project codes are commonly used to identify different clients, types of jobs, job orders, locations, profit centers, and departments. All of the products reviewed offer this capability.

Job Costing A broader concept than job or project reporting, job costing

allows you to accumulate costs by job and bill the client at a specified rate or markup. Support for job quotes or estimates is usually included in these systems. In the midrange market, Components offers job costing with job quotes. Connected offers a sophisticated job-costing system, but without the quote feature. In the entry-level market, QuickBooks Pro offers excellent job-costing systems with quotes.

Time Billing Time billing allows you to charge employees' hours to the clients or jobs they work on. You enter the number of hours or the percentage of time each employee spent on each job. The

system calculates the dollar cost for those hours and adds the cost to the appropriate job. You can then bill the client for the hours at a specified markup, a fixed amount, or at cost. Reporting generally allows you to see the costs and revenues for each job and to compare them to the original estimate. Time billing is usually a separate module, but Components and Connected offer this in their job-costing modules. In the entry-level market QuickBooks Pro includes time billing with job costing and payroll.

Midrange Contenders

With all that in mind, let's see how the midrange accounting systems compare.

Components Components' four modules—General Ledger, Accounts Receivable, Accounts Payable, and Job Cost/Time Billing—provide a set of accounting building blocks that you can tailor to your business. This customization isn't without cost: it helps to have someone with a solid accounting background involved in the setup process. Once set up, each module has a simple, logical flow that makes it easy to use. Each module functions as a stand-alone unit; you can integrate the modules by exporting data to the General Ledger, but this technique is cumbersome despite excellent import/export facilities.

The Job-Cost/Time-Billing module is the strongest module in the Components set. It creates estimates, accumulates expenses and time costs per job, bills customers using a variety of costing methods, produces statements, and manages collections. It also maintains separate records of original estimates and change orders, and it accounts for individual client-trust accounts—hard-to-find features that are critical for some businesses (see the screen shot "Costing a Job"). Perhaps Components' most useful feature is a remote time-entry option, which permits employees to record their time and transfer the data to the main system as appropriate. The excellent selection of preformatted reports includes several employee-productivity reports. Extensive filter options let you see only the items you want.

Components' other strong point is its forms and report-design facility—far and away the best for any of the programs reviewed here. This feature, which is available in all modules, allows you to create completely customized, professional forms and reports using drag-and-drop icons to move text, data fields, computation instructions, and graphics wherever you want.

On the downside, Components lacks inventory and payroll modules. You can

BY THE BOOKS: WHAT MIDRANGE ACCOUNTING SYSTEMS OFFER

	Components	Connected	MacP&L	MultiLedger	Peachtree
Vendor	Satori Software	EveryWare Development	State of the Art	CheckMark Software	Peachtree Software
Phone	206/443-0765	905/819-1173	916/791-7730	970/225-0522	404/564-5700
General functions	S	S	S	E	S
Report on multiple locations, divisions	●	● ^A	○	● ^A	●
Reversing entries	○	●	●	●	●
Automatic recurring entries	●	●	○	●	●
Create accounts during data entry	●	○	●	●	●
Batch processing	●	●	●	○	●
Interactive processing	○ ^B	○	○	●	●
Batch report printing	○	○	●	●	●
Setup	N	S	S	E	S
Sample charts of accounts	○	●	● ^C	●	●
Defer setting opening balances	○	●	○	●	● ^D
Change opening balances after setting	○	○	○	●	● ^D
Reporting	E	S	S	N	S
Calculate financial ratios	●	○	●	○	○
Filter capability on reports	●	●	●	●	●
Graphic-analysis capability	●	○	●	●	● ^E
Customize forms	●	○	●	●	●
Customize financial statements	●	●	●	●	●
Sales, order entry	S	E	S	N	S
Generate quotes	● ^F	●	●	○	●
Invoice from quotes	● ^F	●	●	○	● ^G
Back orders	○	●	●	○	○
Item-level discounts	●	●	●	○	○
Integrated dunning notices	●	●	●	○	●
Purchasing, payables	N	S	S	S	S
Create POs	○	● ^H	●	○	●
Generate POs automatically	○	○	○	○	○
Create invoice from PO	○	● ^H	●	○	● ^G
Recognize expenses by project, job	●	● ^H	●	●	●
Inventory	not offered	E	S	N	N
Multiple locations, warehouses	not offered	●	○	○	○ ^I
Manage component parts	not offered	●	●	○	●
On-order/back-order quantities	not offered	●/●	●/●	○/○	○/○

E = exceptional; N = needs improvement; S = satisfactory. ^A Inventory module, income and expense accounts only. ^B Can report posted and unposted entries. ^C Printed, not on disk. ^D General ledger only; must set before using accounts receivable, accounts payable. ^E Not all modules. ^F Job costing/time billing module only. ^G Deletes quote or purchase order when invoice is created. ^H Inventory, job costing only. ^I Kludgy workaround possible.

integrate CheckMark's Payroll with Components by using the import/export feature, but there is no viable substitute for an inventory module. This rules Components out for most merchandising and manufacturing firms.

Connected EveryWare's Connected is a set of fully integrated accounting modules packed with special features not usually found in programs in this price range—just to name a few, you can add notes to customers' records, invoices, jobs, and more; override general-ledger account codes; create multiple levels of customer-discount codes; enter vendor part numbers and serial numbers; and manage purchases in foreign currency. The system is offered in three modules—general ledger/accounts payable/accounts receivable, inventory management, and job costing.

Inventory management is Connected's forte. Connected is the only program I looked at that accounts for multiple warehouses, values inventory using either weighted average or FIFO costing, and tracks warranty information (see the screen shot "Complex Inventory"). In addition, you can price items for up to five customer categories, each with up to five levels of quantity discounts, and track inventory manufactured from component parts. Sales orders and purchase orders come as part of this module, which can generate picking lists, packing slips, and receiving reports.

All modules feature a custom-report writer that allows you to select any data fields available in the system. Unfortunately, the report writer—though very powerful—is not easy to use, and EveryWare supplies documentation for it only on request. The company also develops custom reports for an hourly fee. You cannot modify forms such as invoices, purchase orders, and sales orders at all.

Connected is missing several pieces. First, it lacks an integrated payroll system. CheckMark's Payroll can interface with Connected, but only through an import utility. And if you enter employee hours in the job-costing module, you will have to duplicate some of your work in Payroll. If you need to create job quotes or estimates, you may be disappointed in the Job-Costing module. It only uses estimates for comparing actual to budgeted results—it doesn't produce real quotes. Finally, Mac purists may have difficulty with this program because, although the menu layout and data entry screens are consistent from module to module, the interface has a distinctively DOS feel—for example, you can't have multiple windows open at one time. I also noted a tendency for the system to freeze (usual-

ly only temporarily) and respond erratically at times.

MacP&L State of the Art's MacP&L is a full-featured, multiuser system with the ease of use of entry-level accounting systems. Much of the data entry is forms-based, protecting you from the dreaded debit-and-credit jargon of many

works for manufacturing firms as well.

Reporting, though not customizable except for font and font size, is extensive and will meet most users' needs. You can export reports to other applications or hot-link reports to specified documents created in other systems through the Mac OS's publish-and-subscribe function.

This is somewhat awkward to implement and maintain, particularly if you change reporting options. Forms customization is also limited, but the system supports Apple events connections to permit customized data entry from other applications.

If you have a simple payroll that doesn't change much from one pay period to the next, MacP&L's payroll system will probably work for you. But if you have numerous pay codes, or you distribute earnings to several general-ledger expense accounts, this probably isn't your package.

MultiLedger CheckMark MultiLedger's sleek, fast interface and flexible reporting have made it a popular choice for businesses that need a multiuser system, and its bargain price gives it a cost/benefit ratio that's hard to beat.

MultiLedger doesn't offer lots of bells and whistles—just solid, basic accounting that remains stable and responsive even under high transaction volume. Data can be entered in forms or through standard accounting journals. Both

have fast pop-up windows to supply account, customer, vendor, and other codes.

Because of its strong import and export functions, MultiLedger is a good choice for a general-ledger package to back-end a specialized accounting solution. For the same reason, MultiLedger's companion product, CheckMark Payroll, is a good choice to round out other general-purpose accounting systems.

MultiLedger's weak points include its lack of support for keeping multiple transaction windows open—quite an inconvenience. And the inventory-management reporting is simply too basic for most manufacturing firms, and many merchandising firms as well.

Peachtree Peachtree's new release of Peachtree Accounting for Macintosh 2.5 gives a much needed face-lift to a solid, if somewhat traditional, accounting program. Ease of use, previously not one

	Hours	Rate	Amount
Regular	16.00	9.25	148.00
Overtime	0.00	13.88	0.00
SbtTime	0.00	18.50	0.00
Sick	0.00	9.25	0.00
Vacation	34.00	9.25	314.50
	0.00	9.25	0.00
	0.00	9.25	0.00

Hourly Wages 462.50

Salary 100.00

Bonus 350.00

Commissions

EIC

Social Security 56.58

Medicare 13.23

Federal w/h 105.47

State w/h 20.37

Local w/h SDI 11.41

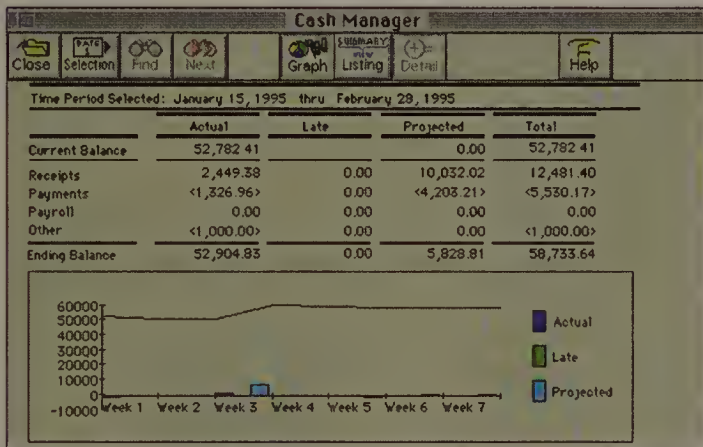
Credit Union United Way 25.00

Net 705.44

Buttons: Calculate All, Save, Undo, Create Check

Employee List: Babbott, Lynn, Brown, Heather, Burkes, Cynthia, Cox, Courtney, Crawford, Alex, Griffith, Margorie, Hagen, Derek, Henderson, Jill, Hill, Allison, Hodge, Jack, Johnson, Larry, Kennedy, Paul, Peterson, Stan, Reed, Dana, Schmitt, Timothy, Talbert, Judy, Taylor, Shelia, Thomas, Debbie, Williams, Tom, Young, Chelcie

Is It Payday Yet? CheckMark's Payroll, which works with other accounting packages, can calculate commissions, bonuses, various overtime structures, and numerous deductions.



Cash Report Among Peachtree's reports is the Cash Manager, which projects your company's cash balance and transactions for a period you specify. You can drill down to underlying details by clicking on figures.

midrange systems. Job-cost reporting is integrated into the general ledger, accounts receivable, accounts payable, and payroll functions.

Flow through the system is straightforward and logical: you enter transactions in either journals or forms and then post entries to update the records. Most day-to-day accounting functions are covered adequately, but the system's selling point is its handling of back orders and inventory reporting, critical features for retailers and wholesalers. Back orders can stay on file and you can easily generate an order when the goods are in stock. Partial receipts on purchase orders are handled in a similar fashion. MacP&L includes both customer back orders and goods on order in inventory reporting, essential information for merchandising firms. And since the inventory system also supports assembled inventory items, it

ROAD-MAP TO AN ACCOUNTING PACKAGE

All users need such standard accounting features as security, ease of use, and reporting, and all the systems covered in this article provide those capabilities in satisfactory measure. But every business also has highly specialized requirements, so we've devised a tool to help you de-

termine which accounting package provides the extras your business needs. From the list of business types, find the accounting package or packages that are generally appropriate for your business, then search across the column headers for the specific features you require.

BUSINESS TYPE

RETAIL/WHOLESALE

MANUFACTURING

SERVICES

PRODUCTS

Midrange systems

Components

Connected

MacP&L

MultiLedger

Peachtree Accounting

Special-purpose packages

CheckMark Payroll

POS•IM-Premier

Entry-level contenders

M.Y.O.B.

QuickBooks Pro

FEATURES

Supports high transaction volume	Manages inventory in multiple locations	Manages item component parts	Manages back orders	Prepares quotes	Generates invoices from quotes	Automates item-level discounts	Automates customer-level discounts	Calculates commission compensation	Bills jobs based on time, expenses
●				●	●	●	●	●	●
●	●	●	●			●	●	●	●
		●	●	●	●	●	●		
●							●	●	
		●		●	●				
●								●	
●	●		●			●			
		●	●	●	●	●	●		
		●		●	●	●			●

of Peachtree's strong points, has been enhanced by a navigation aid and a context-sensitive help system. File folder tabs and miniature flowcharts provide quick, easy access to many accounting functions. Context-sensitive help windows follow you through the system.

Peachtree offers many choices not commonly available. For example, if your business is small you'll probably operate the system on a cash-accounting basis, while for a larger business you can choose to operate on an accrual basis. You can set up accounting for multiple branches or divisions, and choose between batch or real-time updating. Setting up Peachtree, however, is not for the faint of heart—this is a good time to call a consultant and pay for some advice.

Peachtree provides solid, no-nonsense basic accounting and a repertoire of reports to meet most needs. Simple job costing is available for revenues and expenses, including payroll. Payroll can distribute wages across multiple expense accounts as well as multiple jobs. Peachtree also provides fully customizable forms and reports, though the customization process is a long way from drag and drop. A new set of business-analysis reports provide quick access to information about cash collections and payments (see the screen shot "Cash Report"). These reports combine graphic analysis with drill-down capabilities that can show the individual transactions summarized in reports and even let you

act on them immediately—writing a check to pay an overdue bill, for example.

Though Peachtree provides solid accounting and reporting features, its interface is stodgy and awkward, and its multiuser capabilities lack the processing power to handle high-transaction volumes. But if multiuser is what you're after, the price is hard to beat.

The Last Word

Which system is right for your business? There are no easy answers here because there are no perfect systems here; each system has some strengths and some weaknesses. Selecting a package inevitably involves compromises—your business may be constrained by a specific reporting requirement, for example.

For general accounting, MacP&L is best for its ease of use and its accounting and reporting capabilities. Its interface wins hands down, and it provides a wealth of reporting capabilities that should meet the needs of most businesses.

Service businesses that frequently bid for jobs, and professional offices that bill for employees' time and other costs, should take a look at Components' Time Billing/Job Cost module. Its cost tracking, invoicing, and reporting are hard to beat. Because Components' modules are not fully integrated—posting transactions from one module to another, for example, is an arduous process of exporting and importing—you may prefer to use the Time Billing/Job Cost module with

MultiLedger or another package that provides complete integration.

Connected's interface may not be up to Mac standards, but its accounting capabilities are great. If you're a retailer, distributor, or manufacturer, its inventory system provides you with a wealth of management information. And if there is no preformatted report for the information you need, Connected's flexible, sophisticated report writer can produce one—once you figure out how it works.

Business owners looking primarily for solid accounting capabilities in a multiuser environment will find MultiLedger with the companion Payroll a good bet. It lacks the depth of other systems, but speed, flexibility, and simplicity make it a good choice for many. **m**

JAN GILLESPIE has managed and implemented accounting systems for private and public organizations, and currently teaches accounting at the University of Texas at Austin.

MIDRANGE ACCOUNTING SYSTEMS



The financial-management needs of growing businesses are so diverse that no single accounting package can satisfy all of their requirements.

POWERWAVE FROM POWER COMPUTING



MacWeek - APRIL '95



MacUser - AUG '95



Macworld - AUG '95



PC Magazine - AUG '95



InfoWorld - JUNE '95

EDITOR'S RAVE ABOUT POWER COMPUTING...

"Considering the purchase of a PowerMac?
...We strongly recommend that you take a
serious look at what Power Computing
has to offer."

MacUser- Aug 95

"They might as well have come from
Apple- the performance and compatibility
are that good."

Macworld- Aug 95

"Power Computing's systems match their
PowerMac counterparts for speed and
compatibility and are every bit as good as
a dyed-in-the-wool Macintosh."

Infoworld- June 95

"...an excellent Mac alternative,
whether or not you are pinching your pennies."

PC Magazine- Aug 95

"With an experienced staff recruited from Dell, APS, and Apple, Power Computing
has designed a robust support system... The support is excellent."

Macworld- Aug 95



PowerComputing

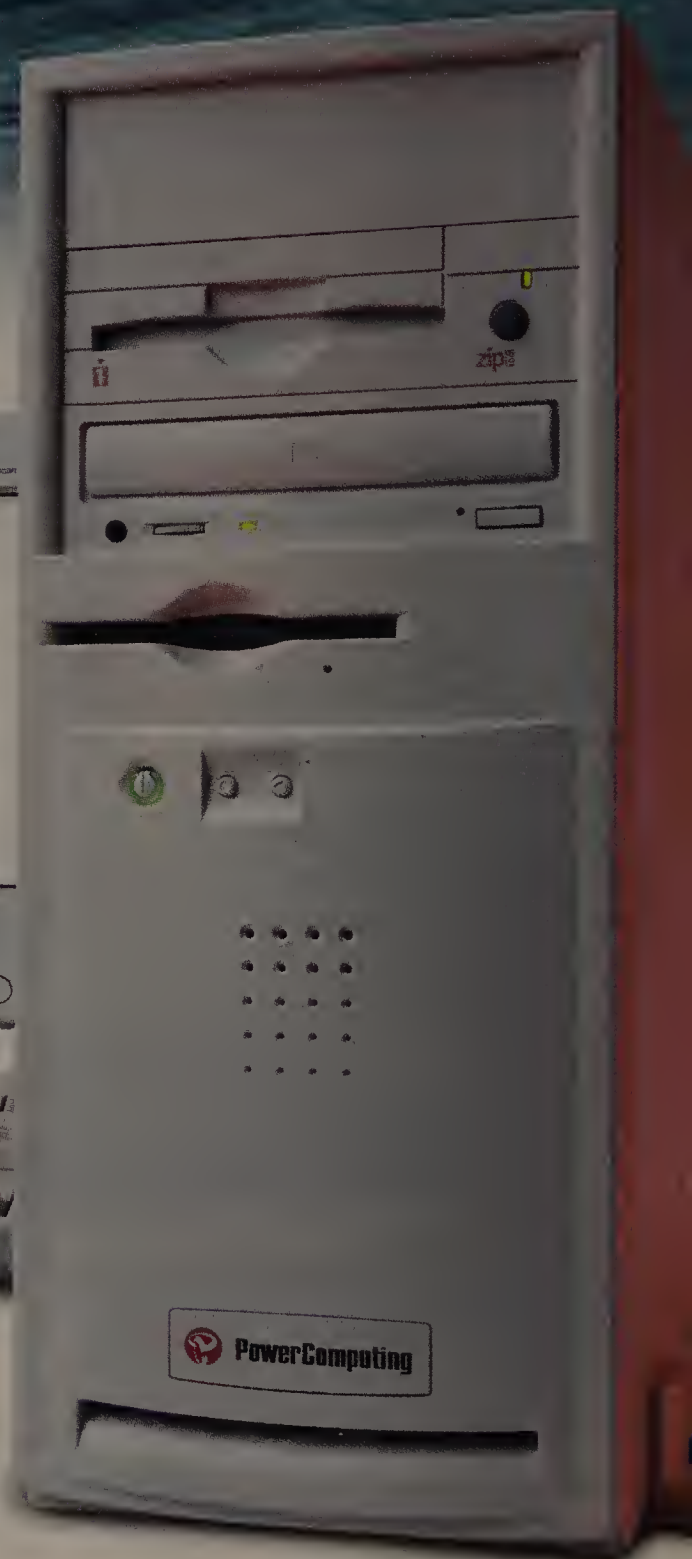
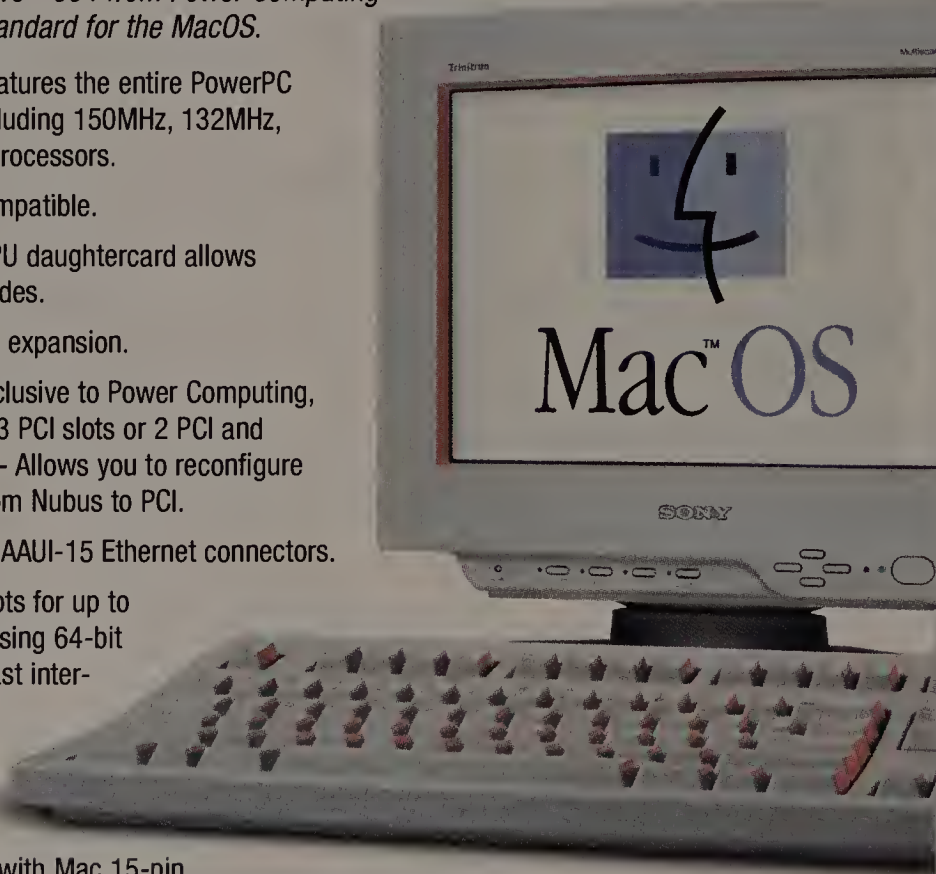
MORE POWER TO YOU.™

POWERWAVE FROM POWER COMPUTING

CHOSEN BY APPLE® to be the first Mac™ OS licensee, we've made Power Computing Apple to the core. Designed and built by brilliant, trend-setting Mac engineers to feel like an Apple, run like an Apple, and love people like an Apple.

The PowerWave™ 604 from Power Computing sets a new standard for the MacOS.

- PowerWave features the entire PowerPC 604 family including 150MHz, 132MHz, and 120MHz processors.
- 100% Mac compatible.
- Plug & Play CPU daughtercard allows for easy upgrades.
- Fast PCI 3-slot expansion.
- STARGATE: Exclusive to Power Computing, choose either 3 PCI slots or 2 PCI and 2 Nubus slots - Allows you to reconfigure at any time from Nubus to PCI.
- 10Base-T and AAUI-15 Ethernet connectors.
- Eight DIMM slots for up to 512MB RAM using 64-bit DIMMS with fast interleave memory.
- Accelerated 64-bit PCI VRAM video graphics card with Mac 15-pin and SVGA connectors (2MB VRAM upgradeable to 4MB).
- 3 Front Accessible Drive Bays for optional Quad-Spin (4X) CD-ROM drive and Iomega Zip drive.
- Socketable DIMM High-Performance Level 2 Cache sizes include 256K, 512K or 1MB.
- Internal Fast SCSI bus (up to 10MB/sec) and external SCSI bus (up to 5MB/sec).
- Extended keyboard and mouse included with every system.
- 30 day money back, Love-Me-Or-I'm-History guarantee. Toll-free lifetime technical support. 1, 2, or 3-year on-site service available, starting at \$49.

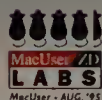


Fastest MacOS System Ever 150MHz PowerPC 604 Fast PCI and Nubus Expansion Accelerated 64-bit PCI Video and Fast SCSI

ORDER DIRECT AND SAVE
1-800-410-7693



MacWEEK - APRIL '95



MacUser - AUG. '95



Macworld - AUG. '95



PC Magazine - AUG. '95



Infoworld - JUNE '95

Power 120 Starter System 120 MHz PowerPC™ 601+

8MB RAM (200MB Max RAM)
256K Level 2 Cache (1MB Max)
540MB 11ms SCSI Hard Drive
Built-in Ethernet (AAUI Port)
Onboard DRAM Video Support
Dual-Channel SCSI interface
Extended Keyboard & Mouse

\$1999

Power 120 Best Buy Loaded 120 MHz PowerPC™ 601+

8MB RAM (200MB Max RAM)
256K Level 2 Cache (1MB Max)
540MB 11ms SCSI Hard Drive
14 inch .28 DPI Monitor
Quad-Speed (4x) CD-ROM Drive
Built-in Ethernet (AAUI Port)
Onboard DRAM Video Support
Dual-Channel SCSI interface
Extended Keyboard & Mouse

\$2599

PowerWave 604/120 Starter 120MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
Optional 256K, 512K, or 1MB Cache
1.0GB 11ms SCSI Hard Drive
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Internal Fast SCSI at 10MB/sec.
Extended Keyboard & Mouse

\$3199

PowerWave 604/132 Hot Pick 132MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
256K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Internal Fast SCSI at 10MB/sec.
Extended Keyboard & Mouse

\$3699

PowerWave 604/132 MultiMedia 132MHz PowerPC™ 604

24MB RAM (512MB Max RAM)
256K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
14 inch .28 DPI Monitor
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Internal Fast SCSI at 10MB/sec.
Extended Keyboard & Mouse

\$4299

PowerWave 604/150 Hot Pick 150MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
512K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
14 inch .28 DPI Monitor
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Internal Fast SCSI at 10MB/sec.
Extended Keyboard & Mouse

\$4799

PowerWave 604/150 XL 150MHz PowerPC™ 604

24MB RAM (512MB Max RAM)
512K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
15 inch Sony Monitor
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Internal Fast SCSI at 10MB/sec.
Extended Keyboard & Mouse

\$5499

OVER \$900 OF FREE SOFTWARE BUNDLED WITH EVERY SYSTEM

Mac OS 7.5.1 or 7.5.2
Insignia's Soft Windows 2.0 60 day trial
Now Utilities, Now Up-to-Date, Now
Contact, Intuit's Quicken, FWB HardDisk
Toolkit PE, FWB CD-ROM Toolkit,
ClarisWorks, America Online
250 Bitstream Fonts

Go Configure!

Since Power Computing is the
manufacturer, you can customize
your RAM, hard drive, video
and monitor options – just call.

12337 Technology Blvd., Austin, TX 78727-6104
tel. 512/258-1350 fax. 512/250-3390.
Check out our Web site: <http://www.powercc.com>
Internet: info@powercc.com



PowerComputing

MORE POWER TO YOU.™

Circle 161 on reader service card

EDITED BY CATHY ABES

Graphics

THE LATEST IN DESIGN, PUBLISHING, AND PREPRESS

Painter Adds Web Design to Its Palette

ONLY ABOUT A YEAR AFTER SHIPPING its last major upgrade of Painter, Fractal Design (408/688-5300) is about to release the next one—with new Web graphics-design tools, collaborative painting, and the ability to blend vector and raster images.

As usual, the latest version of Painter is blazing new trails—this time with its Internet support, which provides a boost for artists and designers who want to break into designing for the World Wide Web without becoming hard-core programmers. Building on Painter 3.1's support of GIF and JPEG formats for Web designers, Painter 4 lets you create Image Maps—collections of bitmapped graphics containing links to other pages or objects. After giving a floating selection a Web URL you save it as an Image Map element. Once in your Web browser, you just click on that Image Map to access whatever page or object it's linked to. And with Painter's new networking feature, Net-Painter, multiple artists will be able to collaborate interactively on an image over the Internet, on local area networks, or via any TCP/IP connection. Because Net-Painter sends scripts rather than screen images, it can work quickly even over low-bandwidth connections.

Continuing the recent trend among graphics programs—like Adobe Illustrator and Photoshop, and Macromedia FreeHand—of blurring the distinction between paint and illustration, Fractal has resurrected and improved on Shapes, which was originally introduced as part of Letraset's ColorStudio. A PostScript drawing layer that floats above Painter's bitmap canvas, Shapes lets you import—or copy and paste—PostScript objects created in Illustrator 5 format, or create your own antialiased vector objects. You can then modify these objects with Painter's Bézier drawing tools; convert



SUSAN LEVAN

them into bitmapped floating selections to add such painterly effects as transparency, textures, Photoshop filters, and blending modes; and combine the objects with other floating selections. The QuickCurve lasso lets you draw precise Bézier selections, and new alignment tools allow precise positioning of both bitmapped and PostScript objects.

This year's new natural-media tool is Mosaic, which lets you paint with tiles on a blank canvas or over a scanned image. Each tile is a separate object whose shape fits in with the tiles surrounding it. You can change the size and dimensions of tiles and grout, and vary their uniformity. Other new features include a Mask Edit mode for defining detailed selections and the Advanced Color Correction module

continues on page 114

KPT Adds 3-D and Animation to the Mix

IN ADDITION TO CHANGING ITS NAME, MetaTools (formerly HSC Software, 805/566-6200) has been busy revamping its popular set of special-effects Adobe Photoshop plug-in filters, Kai's Power Tools (KPT). In addition to adding several new filters, KPT 3 offers real-time previews and visual presets, better filter controls, and a more powerful texture generator.

With KPT Lens f/x, you can combine effects (such as Gaussian blur, noise, find

edges, and smudge) and drag the lens to different parts of your image to see the results immediately. Spheroid Designer is a 3-D materials editor that lets you ray-trace spheres with bump maps, transparency, negative or positive lights, and other effects. Interform is a submodule of Texture Explorer that lets you mutate two textures into a new one that you can animate over time. Two one-step filters have been added: Tiling Plane, which creates a zoomable field of tiles with perspective, and Video Feedback, which infinitely repeats an image on top of itself.

Two of KPT's most powerful and popular filters, Texture Explorer and Gradient Designer, have been enhanced and integrated—you can interactively change gradient colors within Texture Explorer. Texture Explorer gives you 16 algorithmically generated, nontiling mutations. In both filters, you can modify hue, saturation, brightness, contrast, and blur in real time. You can also modify or feather a selected area of a gradient.

Interface changes include graphical

presets, larger preview windows, the ability to click and drag through channel operations and sample colors by clicking, and multiple undos—you can back up nonlinearly to any step. And every filter has its own channel and opacity controls.



After applying multiple effects with KPT 3's Lens f/x filter, you can move around the lens-shaped preview window to check out these effects on different areas of the image.

MetaTools also plans to release KPT Final Effects (acquired from UDAC Multimedia), a video special-effects plugin for Adobe After Effects 3.0, by November. Effects include rain, snow, rays, explosions, and transitions.

KPT 3 is available now for \$199; upgrades from 2.1 are \$79.—C.A.

Is Dry Film Ready for Prime Time?

IF YOUR COMPANY OR GRAPHICS department would benefit from an in-house imagesetter, dry-film technology might be the breakthrough you've been waiting for. Otherwise, you might want to take a wait-and-see approach to this much-ballyhooed new process.

Dry film doesn't require the enormous amounts of water and toxic chemicals it takes to develop conventional, silver-halide film. Instead, dry film typically relies on high levels of heat to develop the thermally sensitive, specially coated film (the actual process varies from one film manufacturer to another, see "How Dry Film Reduces Toxic Disposables: Three Approaches").

As a result, such companies as Eastman Kodak, 3M, Xerox, and Polaroid are touting dry film as a significant advance in graphic arts technology—a way to produce film for printing plates without the expense and maintenance required to handle and dispose of chemicals. Imagesetters using dry film don't need plumbing or darkrooms, making these machines much more suitable for the corporate workplace. And with an in-house imagesetter, companies can produce film faster

than they can by sending jobs out to a service bureau.

Overall, many who have had experience with dry-film images say the new technology is generally capable of producing about the same quality as traditional film—wide density range, sharp edges, dense blacks, and clean halftone dots. Some have reported that dry-film output is actually more reliable because it eliminates the variabilities that can occur in chemical processing. At the least, dry film can generate images of sufficient quality for publishing brochures, newsletters, and direct-mail pieces—exactly the type of jobs most frequently handled by in-house marketing and graphics departments and corner printshops.

Despite these advantages, a number of concerns threaten to keep dry film from becoming widespread—at least for the foreseeable future. For one thing, only a few dry-film products and their accompanying high-resolution devices are currently available. Polaroid's Graphics Imaging division and Linotype-Hell began shipping their jointly developed dry film and imagesetter, respectively, in

continues

IN BRIEF

■ PostScript Toolbox

Download Mechanic Pro (\$495; \$199 upgrade from Download Mechanic 1.7) from Acquired Knowledge (619/587-4668; aqrdnlj@applelink.apple.com) lets you preview, analyze, test, edit, debug, and rasterize PostScript files—through a built-in PostScript Level 2 interpreter—either individually or in batch mode. You can preview in monochrome, gray scale, or color at 72 or 144 dpi, and you can view PDF files on screen. Due in November 1995, Pro will be followed by a stand-alone reader for Download Mechanic preview files, planned for early 1996.

■ Bitmaps into Vectors

Tracer (\$495) from ScanVec (508/694-9488; usales@scanvec.com) converts black-and-white scanned images and imported bitmaps (in TIFF or PICT) into vector-based line art. You can trace a form's contours, draw a centered path, or do a combination of both. Options include creating outlines with enhanced corners or enhanced curves, squeezing or rounding off corners, editing curves between any two selected points, and converting all selected shapes to circles. Tracer also has multiple undos. The next version is expected to work with gray-scale and color images.

■ DrawTools and Intelli-

hance Extensis (503/274-2020; info@extensis.com), released two plug-ins in October. DrawTools (\$149) is a set of 17 Illustrator/FreeHand filters in three modules. DrawTools Color lets you mix and replace colors, convert to gray scale, adjust curves, create duotones and multitone, and do color separations. Shape lets you apply 3-D effects to geometric or free-form shapes. It also exploits FreeHand 5.5's drag-and-drop effects, floating palettes, and interactive previews. Move, which works only in Illustrator, lets you precisely resize and position objects within and between layers. Intellihance 2.0 (\$149) is a Photoshop plug-in that adjusts image contrast, brightness, saturation, sharpness, and despeckle in one step.

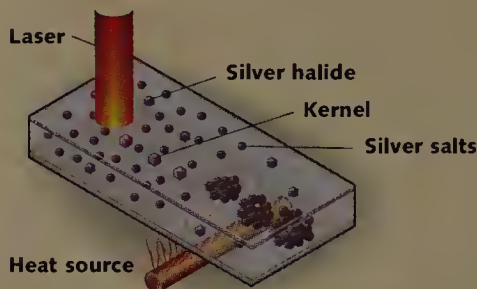
"IS DRY FILM READY FOR PRIME TIME?" *continued*

How Dry Film Reduces Toxic Disposables: Three Approaches

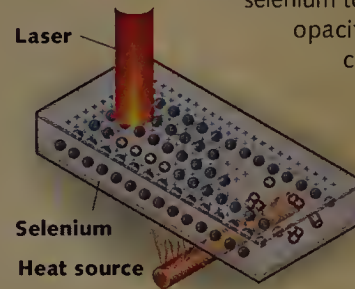
Polaroid's DryTech sandwiches a layer of carbon between an adhesion layer and a laser-sensitive layer. Exposed areas of carbon, heated by the imagesetter's laser, stick to the laser-sensitive layer, while unexposed areas stick to the adhesion layer. Removing the adhesion layer leaves the image on the other layer. All disposables are nontoxic and recyclable.



3M's dry film sandwiches a layer of silver halide, mixed with silver salts, between other layers. Exposure to the laser causes silver-halide kernels to form; heat makes silver salts build up around kernels to create the image. Other chemicals are used to add contrast. There are no disposables.



Xerox's Verde sandwiches a layer of selenium embedded in plastic and a conductive layer between a base and an overcoat layer. After electrically charging the conductive layer, the imagesetter transfers the charge to exposed areas of the selenium layer. Heating the film causes the charged selenium to scatter, reducing opacity, while the uncharged areas remain opaque. There are no disposables.



late September. Xerox released its initial Verde dry-film product this summer, but the first imagesetter to use it—Information International's 3850 Grafix—isn't expected to ship before spring 1996. And dry-film products from Kodak, 3M, Konica, and others aren't expected to be available until mid-1996 at the earliest. LaserMaster and CalComp introduced dry-film output devices last year, but LaserMaster's \$19,995 PressMate and CalComp's \$39,995 EcoGrafix system are closer in quality to high-end laser printers than to imagesetters.

Another limitation is that, in most cases, only specially equipped imagesetters can process dry film. Eastman Kodak's dry film, for example, requires Dainippon Screen's TE-R1070 imagesetter, while Polaroid's DryTech Film works only on Linotype-Hell's DrySetter.

There are a few exceptions—Information International says you'll be able to upgrade some of its imagesetters to handle Xerox's Verde chemical-free film, and 3M and Fuji are working on dry-film products that work on traditional imagesetters. And ECRM has been working with a number of vendors, including Xerox and 3M, to add dry-film capability to its ScriptSetter line. But for the most part, to use dry film, you'll have to invest in a new imagesetter. This shouldn't be a problem for corporate departments shopping for their first in-house imagesetter. Many prepress houses and service bureaus, however, are already fully configured for wet-film processing. They aren't interested in investing in additional equipment and dealing with two separate film-preparation methods—particularly when all they'll receive for their efforts is image quality that's no better than what they're already getting.

Prices for most dry film and the imagesetters that use them are far from

firm, so it's too early to say definitively if using a dry-film process will save you money. Steve Hannaford, editor and publisher of the *PrePress Business Observer* newsletter in Swarthmore, Pennsylvania, estimates that dry-film material may cost as much as 25 percent more than wet film. But because dry film requires no purchase and disposal of chemicals, he admits that overall cost differences will probably be negligible.

Likewise, it's too early to say if dry-film printing will be faster than wet-film printing. Dry film can take longer to output than traditional silver-halide film, for instance, but you save time by not having to handle chemicals or wait for the output to dry.

At any rate, the question of whether dry-film technology is right for you might become irrelevant. That's because direct-to-plate technology, in which you bypass film and generate a high-quality printing plate directly from your Mac, is expected to take off in the next few years, once equipment prices come down and the quality stabilizes. And direct digital transfer—in which you send your final files directly to the printer over high-speed, high-capacity lines—is on the horizon as well. The bottom line: If you need to buy a new imagesetter, particularly for in-house use, take a serious look at what the dry-film process has to offer. Otherwise, you might be better off waiting to see how dry film develops.—JAMES A. MARTIN

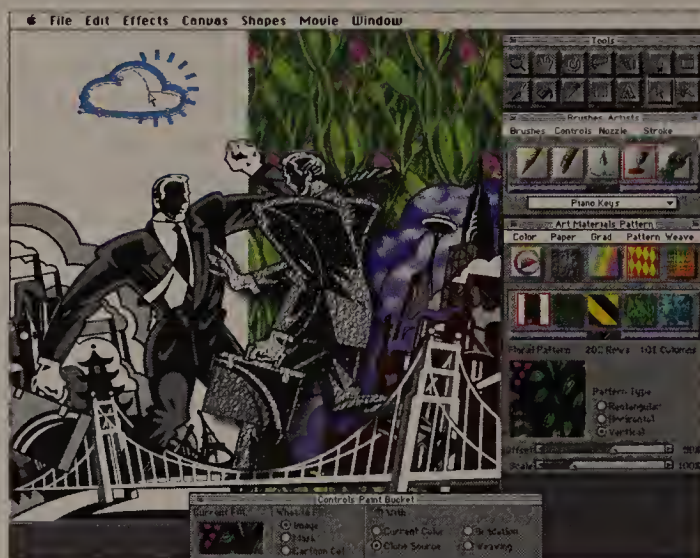
"PAINTER ADDS WEB DESIGN TO ITS PALETTE" *continued*

for controlling an image's tonal range.

As it did with previous versions, Fractal continues to streamline Painter's interface. The ability to access any tool or command from a palette, and variations of

a tool from pop-ups, eliminates frequent and annoying trips to the menu bar. And two new palettes give you a place to stash self-tiling patterns and Image Hose nozzles. Also handy are a Scale slider for adding depth and a Grain slider for atmospheric perspective, which makes objects look hazy by letting background colors show through.

Planned for a mid-November release, Painter 4 will ship with an Extras CD-ROM that includes more than 100 new patterns, paper textures, and Image Hose nozzles. Fractal Design is maintaining its practice of raising Painter's price with each major upgrade. Version 4 will retail for \$549—\$50 more than its predecessor. Upgrades from earlier versions of Painter or ColorStudio will be \$129.—C.A.



Painter 4 lets you create or import vector art, apply paint effects, and combine it with bitmapped images. Here the direct-select tool is moving individual anchor points of a PostScript object.



Macintosh Training Videos

Only \$49 Each

2 Hour VHS Videos only \$49

ACT! 2.0	3 videos	☐
Access 2.0	6 videos	☐
Canvas 3.5	5 videos	☐
Claris Works 4.0	7 videos	☐
CorelDRAW 5.0	6 videos	☐
CorelDRAW 4.0	6 videos	☐
Creating Networks	1 video	☐
Desktop to Pre-Press	2 videos	☐
Design & Layout	1 video	☐
Digital Chisel 1.2/2.0.....	1 video	☐
Director 4.0	5 videos	☐
Excel 5.0	5 videos	☐
FileMaker Pro 2.1.....	4 videos	☐
FreeHand 5.0	6 videos	☐
4th Dimension 3.0	6 videos	☐
HyperCard 2.3	4 videos	☐
Illustrator 5.0/5.5	5 videos	☐
Infini-D 2.5/2.6.....	2 videos	☐
Integrating Programs	1 video	☐
Introduction to Online Services ..	1 video	☐
Lotus 1-2-3 4.0	4 videos	☐
Mac P & L 4.0	3 videos	☐
MacProject Pro 1.0	4 videos	☐
MacTools Pro 4.0	1 video	☐
Mac Troubleshooting	3 videos	☐
MacWrite Pro 1.0/1.5.....	3 videos	☐
Mastering Macintosh 7.1/7.5....	4 videos	☐
Mastering the Internet.....	1 video	☐
Microsoft Works 4.0	5 videos	☐
MiniCad 5	2 videos	☐
Nisus Writer 4.0	4 videos	☐
Norton Utilities 3.1	1 video	☐
Now Contact 3.5	1 video	☐
Now Up-to-Date 3.5	1 video	☐
Now Utilities 5.0	1 video	☐
PageMaker 6.0	7 videos	☐
Painter 3.0	4 videos	☐
Persuasion 3.0	2 videos	☐

GUARANTEE: All MacAcademy videos carry a 30 day money back guarantee. Video training for programs when upgraded can be ordered for only \$19.95.

Peachtree Accounting 2.0	3 videos	☐
Photoshop 3.0	10 videos	☐
PowerPoint 4.0	2 videos	☐
Premiere 4.0	3 videos	☐
QuarkXPress 3.3	4 videos	☐
Quicken 5.0 Personal	2 videos	☐
Quicken 5.0 Business	2 videos	☐
QuickTime 1.6/2.0.....	1 video	☐
SuperPaint 3.5.....	3 videos	☐
Using America Online	1 video	☐
Using CompuServe	1 video	☐
Using Fonts	1 video	☐
Using PowerBooks	2 videos	☐
Utilities, CDEVs, Inits	1 video	☐
Windows 95.....	4 videos.....	☐
Word 6.0	6 videos	☐
WordPerfect 3.1/6.1.....	6 videos	☐

TO ORDER: Simply check the video you wish to order. You may use a credit card, personal or company check, or purchase order. Credit card orders may be made by phone. Please add \$4 per order plus \$1 per video for shipping and handling (outside continental U.S. please call for charges).

MacAcademy
100 East Granada Blvd Dept MW196
Ormond Beach FL 32176-1712

Videos may be ordered individually or as a group. Video training is also available in **Spanish, Japanese, German, and French** for selected titles. Video training is also available for most **Windows** programs. For a complete catalog of all MacAcademy products and live training workshops call 800-527-1914.

Call 800-527-1914 or 904-677-1918 FAX 904-677-6717

[illegible]

2000 +

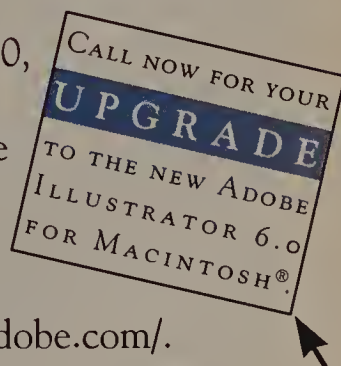


the crystal ball
sees all

WONDER BOY

ADOBE ILLUSTRATOR 6.0

Your ability to perform wonders just got a boost. Now the leading illustration and page design program for Macintosh® offers the highest quality TIFF and other file format support of any illustration program. And boy! Look at these killer features. You can drag and drop images from Adobe™ Photoshop™ right into the application; turn your Adobe Illustrator™ artwork into raster images and apply Photoshop™ filters; and edit and colorize 1 bit TIFF images. And you can run a full array of plug-ins for Adobe Illustrator and Photoshop. You also get a CD-ROM with 220 Adobe Type 1 fonts, Adobe Dimensions™ 2.0, QuickTime™ tips and techniques, and more. Upgrade to the new Adobe Illustrator 6.0. Then turn your own genius loose. Call 1-800-521-1976, Extension L1271 for more information or visit our web site at <http://www.adobe.com/>.



If you can *dream* it, you can *do* it.™



Expert Graphics

GRAPHICS PROFESSIONALS SHARE THEIR SECRETS

by Cathy Abes

Artist: Richard Tuschman is a photo-illustrator whose work has appeared in such publications as the *New York Times*, *Sports Illustrated*, and the *New Yorker*.

How It Was Done: For the background of this image, created for a Lotus newsletter, Tuschman began by dividing a scanned texture into quadrants. To make the sky and water, he used photos he'd shot. For the top and bottom quadrants, he wanted a relief texture with an industrial look, so he used a crisscross pattern.

After scanning a painted texture into Photoshop, he switched from Grayscale to Bitmap mode and applied a coarse line screen. This produced large diamond-shaped dots that, because of the variations in the texture, were somewhat irregular. After converting the bitmap back to gray scale, he scanned another painted texture and resized it to match the first. In the Channels palette, he dragged the crisscross texture onto the new texture to create an alpha channel. Duplicating the channel, he put the duplicate in a second alpha channel to which he applied a 3-pixel Gaussian Blur.

Next, he converted the image to RGB so he could apply Photoshop's Lighting Effects filter, using the Texture channel plus the light's falloff and positioning to create an irregular relief effect. Moving the Input Levels Gamma to .4 darkened the crisscross lines.

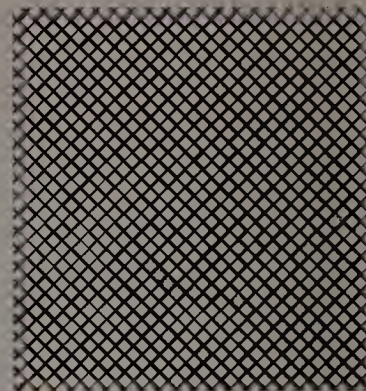
After colorizing the texture with Hue/Saturation, he used Color Balance to further differentiate between the insides and the edges of the diamonds for a more three-dimensional look.

In Live Picture, Tuschman opened a third painted texture as the background of the entire image. To map out four slightly overlapping triangular quadrants, he made a stencil with multiple paint layers.

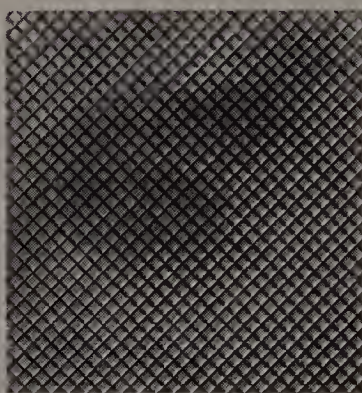
Once he'd inserted the crisscross pattern into the top triangle, Tuschman brought in the water and cloud photos, then filled the bottom triangle with a duplicate of the crisscross pattern. To enrich the colors, he added several colorized layers and painted in areas of greater saturation. **m**



1 The original scan of the first texture, which Tuschman had previously painted using traditional media.



2 The texture after the artist changed it to Bitmap mode and applied a very coarse line screen (dot shape, cross; 5 lpi; 45-degree angle) to produce large, irregular diamond-shaped dots.



3 Applying Lighting Effects (Style, Omni; Light Intensity, 18; Gloss, 93; Material, 69; Exposure, 0; Ambience, 25; Texture Channel, 5; Height, 8; "White is high" box unchecked) produced this three-dimensional relief effect.



4 The crisscross texture after Tuschman colorized it to a yellowish brown, using Hue/Saturation (Hue, 34; Saturation, 61; Colorize box checked.)



5 The texture after he used Color Balance to adjust the insides of the diamonds (Midtones +56, 0, -37; Shadows +29, -17, -47) to make them golden orange, and the outer edges (Midtones -53, +25, +41) to make them green.



⑥ The third painted texture, brought into Live Picture as the underlying background. To map out the quadrants, he applied a stencil with two intersecting diagonal lines, each on a separate paint layer—softening the edges with the airbrush and blending them into the background with the palette knife. To give a sense of shifting and overlapping areas, he made two more paint layers, offset them slightly from the originals, and repeated the process.



⑦ The image after Tuschman brought in the crisscross pattern, stretched it to fill the top quadrant, and added the water photo at 50 percent opacity so the background would show through.



⑧ The image after Tuschman brought in the cloud photo, also at 50 percent opacity. To add more clouds, he inserted the sky again and offset the second version. For both the sky and water, he erased the image with the marquee and then used the airbrush to paint back selected areas. Finally, he duplicated the crisscross pattern, flipped the duplicate, and moved it into the bottom quadrant.

THE TOOLS

Hardware: Macintosh Quadra 650 with 72MB of RAM and 66MHz Apple PowerPC Upgrade Card; NEC MultiSpin 3X internal CD-ROM drive; 230MB internal hard drive; APS external 2GB hard drive; APS external DAT tape drive; Sony CPD-1604S 17-inch color monitor; SuperMac Spectrum/24 Video Card; NuDesign external 128MB optical drive; Magic 44MB SyQuest drive; Umax UC 630 flatbed scanner; Wacom ArtZ graphics tablet.

Software: Adobe Photoshop 3.0.1; Adobe Illustrator 5.5; Adobe Dimensions 2.0; Live Picture 2.0; Ray Dream Designer 3.1.1.

EDITED BY CAMERON CROTTY

At Work

THE LATEST TOOLS FOR BUSINESS COMPUTING

Lotus Notes: More Power, Less Hassle

IF YOU'VE LOOKED AT NOTES, THE crown-jewel Lotus (617/577-8500) groupware application, and wondered if an IS manager comes bundled in every box, Lotus wants to talk to you about version 4, set to ship in January. The new version, under development for two years, updates the client interface, the server application, and the tools that make the two work together.

Smoothing the Wrinkles

The choice to rewrite Notes' mail interface to resemble Lotus's cc:Mail interface was easy—1 million Notes users hated the look of Notes mail, while 7 million cc:Mail users (including those on Macs) liked the system they had. Users can now resize windows (called "panes") more easily and create sets or views, loading or hiding databases based on the user's current location.

Beyond the interface, ease of use is a theme that runs through this update. Lotus has added a server capability it calls "pass-through," which means users can dial in to one server, update (a.k.a. *replicate* or *synchronize*) a database stored there, and then access databases located on other servers without dialing in a second time. Users can also choose to replicate databases incrementally, updating only changed fields. Both these features reduce phone time on the road, paring down a traveler's ever-lengthening hassle list.

Another of Notes' drawbacks was the complexity of building even the simplest application. Notes 4.0 includes LotusScript 3.0, a full-featured, event-driven scripting language found in other Lotus apps. The VisualBasic-like language can be used to build agents—tiny applications that launch automatically. Users comfortable with programming can write their own agents in LotusScript and use them from their own workstations. Further,



New!

Lotus Notes

FOR MACINTOSH

... So Easy to Drive!

JOHN RITTER

with their IS manager's permission, they can upload those agents to a Notes server and make them available to other users. Lotus ships several agents with the 4.0 client. For instance, the vacation agent responds to incoming E-mail with a return message. Notes 4.0 retains its C API for programmers and the @ functions for building macros, and it gains a C++ API.

On the server side, Notes 4.0 is a 32-bit application, with improved performance. IS managers can now run Notes on servers with up to six processors, up from two. Lotus claims this increase will enable Notes servers to support as many as 1000 users, up from the previous limit of 200. Other additions include a Web browser and the ability to do Boolean searches on saved E-mail attachments. Pricing for the new release was not available at press time, but current estimated street prices are \$275 for the server and client pieces together, and \$155 for a single copy of the run-time client.

Macintosh: Almost Equal Partner

For the Macintosh market, the new version brings good and bad news. Certainly an improved interface and a beefed-up server application will help users, and in 4.0 there's parity between the PC and Macintosh client versions, which hasn't always been the case. Lotus didn't come out with a Mac version of Notes until 3.0, and that one didn't include the ability to search or index databases stored on the client (Macintosh users could search databases on the server).

But when it comes to the burgeoning number of add-on tools available for Lotus Notes clients—ranging from access to Notes databases via the telephone keypad (Phone Notes Mobile Mail) to SQL database tools (Notes Data Access Tools)—Mac versions are a no-show. Only one add-on—the Lotus Notes Pager Gateway, which lets users send messages to alphanumeric pagers over the major paging networks—works on the Macintosh platform.

Furthermore, Mac IS managers will still have to battle with a non-Mac Notes server. Even though Lotus was recently purchased by IBM, Apple's largest partner, there's still no server version of Notes for the Mac, nor are there plans to build one in the current 12-month schedule, according to senior product manager Bill De Stefanis. However hard this decision may be for Macintosh IS managers to swallow, it can be justified from Lotus's standpoint. After all, 90 percent of Notes installations are composed of a Windows client attached to an OS/2 server (Notes is available on every major Unix server platform).

Groupware is one of the hottest product categories of the decade, and everyone wants a piece of the pie. There are constant rumblings in the groupware market—Novell is pushing GroupWise, Microsoft swears it's releasing Exchange soon, and Netscape recently acquired Collabra. There are even a few companies attempting to build groupware-style solutions using the World Wide Web protocols, HTML and http. But for now, Lotus is well ahead of the pack.

—HOWARD BALDWIN

Full Contact Checks Back In



OVER THE PAST 18 MONTHS, the PIM market has experienced brutal competition, and several products and companies have fallen by the wayside. Now one of the casualties, Full Contact, is getting a second chance. A new company, Pitch Software (408/374-5504), has acquired the rights to the program from the original developer, Field Integration Technology, and is readying version 3.0, a significant upgrade.

Full Contact is an integrated address book, to-do list, and calendar manager, with hot links between related information (the underlying engine is a full-featured relational database). People in your contact database are cross-filed to the companies they work for, and activities are also linked, so it's easy to access all the information associated with a person with just one request.

Full Contact 3.0 is Power Macintosh

The Well-Connected Newton

APPLE HAS RELEASED VERSION 2.0 OF the Newton operating system, and while the new OS boasts speed, handwriting recognition, and interface improvements (previously detailed in *At Work* news, November 1995), Apple has also improved how the Newton works with the world around it.

The improved Newton Connection Utilities (\$69) offers bidirectional data translation and synchronization with some personal information managers on the Macintosh (Now Contact and Now Up-to-Date) and in Windows (Microsoft Schedule Plus). Apple also expects third-party applications that include direct synchronization to appear at release. In keeping with the concept of a MessagePad as a portable data repository, Newton Press for Mac and Windows (\$69) creates documents for transfer to a Newton. You

can drag and drop text and bitmapped graphics to create a price list, catalog, or other material. The 2.0 OS can receive as well as send faxes (there's a magnification feature to inspect incoming faxes), and the new system also features an improved eWorld mail client.

The Newton 2.0 OS ROM will be available in MessagePad 120's (which are now known as Apple, rather than Newton, MessagePads), and is also expected to appear on other Newton products.

Apple will upgrade older 2MB MessagePad 120's for \$109; however, any earlier MessagePads cannot be upgraded. Not all older Newton software will run on the 2.0 OS. Apple has included one additional hardware accessory only for the Newton 2.0 OS MessagePads, a \$99 Newton keyboard that connects to the serial port.

—CARY LU



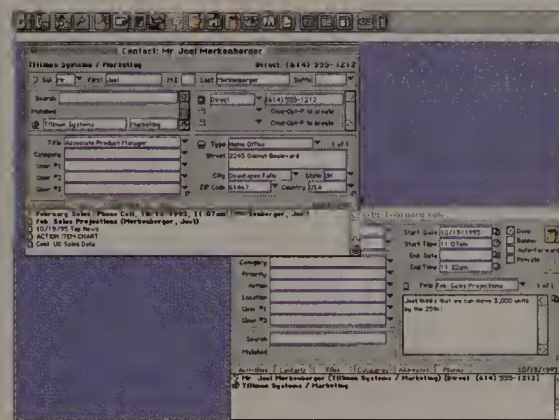
DAVID DIAZ

IN BRIEF

TouchBase, DateBook

Go Native Now Software (503/274-2800, info@nowsoft.com) is shipping version 4.2 of TouchBase and DateBook Pro (\$49.95 for both), now native for the Power Macintosh. The company is also shipping a CD-ROM version (\$69.95) of this address book-and-calendar tag team, which includes more than 45 detailed city guides, offering information on everything from hotels to restaurants to ATM locations.

native and incorporates many user suggestions, such as smaller RAM requirements, better speed, improved find capabilities, and a sleeker interface. You can link files from other programs to a Full



Full Contact keeps pieces of information as separate records, linking them together as you require. Shown here is a contact and a linked note detailing a phone conversation.

Contact record—you could, for example, link a spreadsheet to an activity or contact. Users can now share their calendars with coworkers over a network (as well as mark activities as private), and the calendar is smarter, providing easier viewing of events and to-dos. The program also handles recurring events better, allowing users to schedule them at more-flexible intervals. Full Contact's built-in word processor links correspondence to both the contact and the activity involved. The selection of reports and mailing labels is much larger. There's also new support for System 7.5 features, such as Apple Guide help and drag and drop of contact information to and from the desktop, or to other records within the program.

Pitch Software's Full Contact 3.0 will have a retail price of \$199 (upgrades for users of previous versions are \$39.95) and is scheduled to ship in November 1995.

—TOM NEGRINO

Pollution Solution.



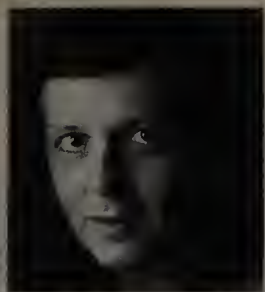
This symbol identifies energy-efficient computers that save you money and reduce air pollution by "powering down" when not in use.

Over 2000 computers, monitors and printers have earned the right to bear the Environmental Protection Agency's Energy StarSM logo. These computers are so smart, they go to sleep when not in use and wake up with a simple touch of the keyboard or mouse. Energy StarSM Computers don't cost

any extra, will save money on your energy bill, and prevent pollution from electricity generation. Be part of the solution and look for this logo when you make your next computer purchase. To receive a list of available products call the Energy StarSM Hotline at 202 775-6650.



Buy It And Save.



BY JIM HEID

Working Smart

GeoPort Telephony Is Here—Finally

APPLE DESIGNED ITS GEOPORT ARCHITECTURE to provide an inexpensive path to telephony—that buzzword describing anything mixing computers and phone lines. GeoPort debuted with the Centris/Quadra 660AV and 840AV and now runs on all Power Macs.

The GeoPort launch was accompanied by the kind of rosy promises that usually herald a new technology: Apple claimed that it could turn your Mac into a fax machine, telephone, answering machine, and voice-mail system. All you needed was a \$129 box called the GeoPort Telecom Adapter.

There was just one problem: Apple failed to deliver an essential piece of system software called the Telephone Manager. Without it, third-party developers couldn't create GeoPort voice mail, telephone, and answering-machine software; you could use your GeoPort Telecom Adapter only for basic fax and modem calls, and bugs in the GeoPort software made even that an iffy proposition.

The Telephone Manager is finally here, as are third-party programs that exploit it. This month, I plug into the GeoPort architecture and survey the telephony tools that work with it.

The Hardware and the Software

The GeoPorts on the back of your Mac are simply fast serial ports: they can accept the same devices that connect to any other Mac serial ports.

To take advantage of a GeoPort's telephony capabilities, you need the aforementioned GeoPort Telecom Adapter, also called a pod. About the size of a videocassette, the adapter has two RJ-11 telephone jacks, one for the wall outlet and one for a telephone. The GeoPort pod works only with analog telephone lines—if you want to use a GeoPort pod with the digital PBX system at your office, you must use an analog phone extension. (In promoting the original GeoPorts, Apple said third-party developers would ship GeoPort PBX

adapters, but none have been announced.)

The GeoPort pod is a simple hardware interface between the Mac and the telephone line. The smarts behind the pod are in the GeoPort software, which includes the Telephone Manager and two Apple software packages, Express Modem and Express Fax.

Express Modem and Express Fax rely on the processing punch of a Power Mac (or the digital signal processor on the 680X0 AV Macs) to create the modem and fax tones that, in a conventional modem, are produced by chips. The software encodes outgoing data and decodes

conventional speakerphones. It also provides address books and a speed-dialing feature (see "The Mac as Telephone").

MegaPhone provides automatic links to databases and contact managers such as Claris FileMaker Pro and Now Software's TouchBase Pro. A call-logging feature automatically times phone calls. When you hang up, a dialog box appears that lets you record information about the call. You can also call back any number in the log by double-clicking on it.

MegaPhone's answering-machine features enable you to digitally record an outgoing message and capture incoming messages on your hard drive.

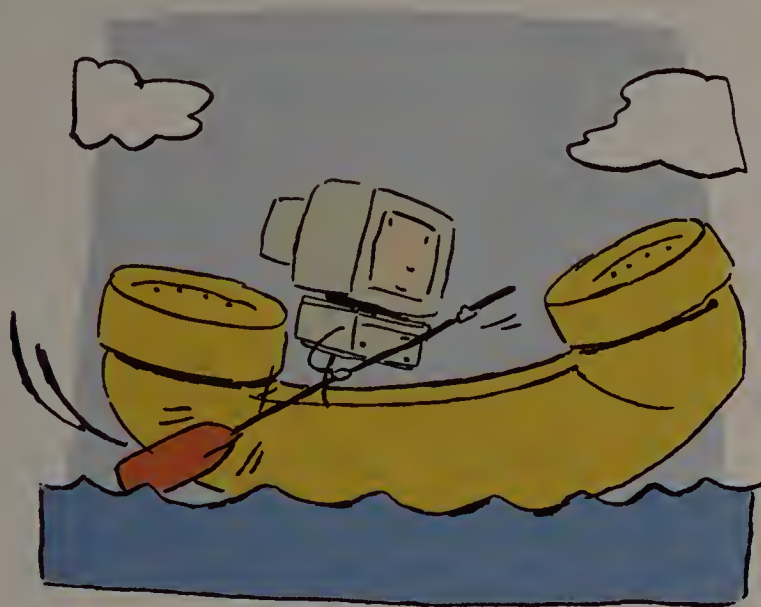
The program provides a slick array of message-management features: you can check your messages from the road, for example, and set up MegaPhone to inform you when a new one comes in. And with Apple's PowerTalk installed, MegaPhone can put new messages in your In Tray.

The version of MegaPhone that comes with the GeoPort is fully functional for 30 days and then turns into Basic MegaPhone, a simple speakerphone and

answering machine lacking MegaPhone's best features. If you get hooked, you can purchase the full version from Cypress Research (408/752-2700) for \$49.95.

MegaPhone includes a limited version of Cypress's nifty autodialing utility, MegaDial, that works only with MegaPhone. The full version of MegaDial lists for \$79.95 and works with other telecom software, GeoPort pods, and standard Hayes AT-based modems. MegaDial's smart-dialing features can automatically dial a phone credit card number if you're calling outside your local area code. Cypress Research also includes a database of 7000 local-access numbers for online

continues



the incoming squawks, while the pod links the GeoPort to a telephone line.

The latest version of the GeoPort software is 2.2, which shipped with the PCI Power Macs in August. (Version 2.1 works on pre-PCI Power Macs and 680X0-based AV Macs.)

Calling with MegaPhone

The GeoPort software includes a first-rate telephony program: MegaPhone from Cypress Research. MegaPhone turns a GeoPort pod-equipped Mac into a telephone—you talk into the Mac's microphone and listen through the Mac's speaker (or through headphones). MegaPhone eliminates the coffee-can audio quality of

services, making MegaDial an ideal companion for PowerBook-equipped travelers.

GeoPort Voice Mail

When I last wrote about telephony here (*Working Smart*, August 1994), I described some hardware-software bundles that turn a Mac into a voice-mail system. Since then, several products have arrived that rely on the GeoPort pod instead of dedicated hardware. Cypress Research has shipped a \$349 software-only version of its powerful PhonePro, a graphical programming environment that enables you to design voice-mail applications by clicking and dragging icons.

PhonePro now supports Apple's PlainTalk, text-to-speech software that allows your voice-mail applications to read aloud information from a database. By pressing numbers on a telephone keypad, callers can query a database to hear information such as account balances, appointment dates, and prices. PhonePro also supports the unified in-box concept: you can specify that incoming voice-mail messages appear in your PowerTalk In Tray or CE Software QuickMail mailbox.

Simplified Voice Mail

With PhonePro's power comes a fairly steep learning curve. If you have a small business and want to set up just a few voice mailboxes, there are simpler and cheaper alternatives. One is Cypress Research's Voice Messenger (the current version, 1.0.1, lists for \$149.95). Voice Messenger provides the essentials: the ability to call in and check messages; assign passwords to each mailbox; and change outgoing messages from a remote phone. Voice Messenger also provides some goodies, including the ability to create different outgoing messages for different times of day, as well as rudimentary text-to-speech support: instead of digitally recording outgoing messages on your hard drive, you can type mes-

sages and have your Mac read them. Unlike PhonePro, Voice Messenger can't read aloud text data from databases and other sources.

Voice Messenger provides a solid set of features, but I found its interface a bit rough around the edges. Another complaint: the program's 125-page manual arrives on a floppy disk; if you want a printed version, you must either print the file yourself or call the company for a printed copy (free upon request). And given Voice Messenger's rough interface, the manual is essential.

A better basic voice-mail program is Pleiades Research's Front Office (version 1.1; \$299; 213/259-1727). Front Office doesn't support PlainTalk text-to-speech, but it does everything else you'd want from a voice-mail system and has talents Voice Messenger can't match, including fax-back support. (Cypress Research's forthcoming \$49.95 Fax Messenger will also provide fax-back features.)

You can set up Front Office so that it automatically dials a number to notify you by phone or pager when your mailbox receives a message. If your phone system provides call-forwarding, Front Office can automatically send calls to another number. You can even specify forwarding to different numbers at different times—for example, to your pager between 6 a.m. and 9 p.m. on weekends and to a voice number at other times.

POWER TIPS FOR MEGAPHONE

Cypress Research's MegaPhone screen-based telephony program is included with the GeoPort software. Here are some tips for using it.

Making Calls

- Gimmicky alphanumeric phone numbers such as 800/BIG-DEAL are all the rage. MegaPhone makes them easier to dial; just type them on the Mac's keyboard and MegaPhone translates them into the appropriate numbers.
- You don't have to click the Dial Number button after typing a number—just press return. Press return again to hang up.

Taking Calls

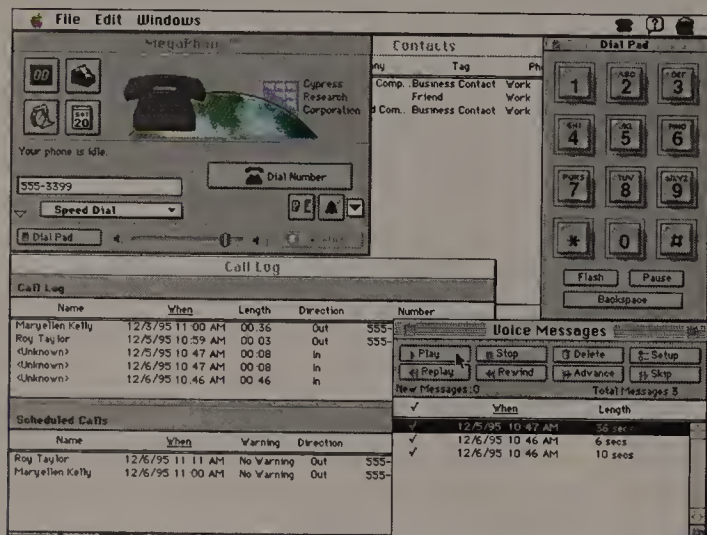
- MegaPhone's answering-machine feature records messages as standard System 7 sound files. This means you can play back messages by simply double-clicking on them in the Finder, and you can archive them by copying them to tape or another backup medium.
- MegaPhone uses 17K of disk space for each second of recorded sound—that's a megabyte for a one-minute message—so your hard drive can fill up quickly. If you're going away for a while, free up some disk space first or specify that MegaPhone store messages on the highest-capacity hard drive you have. Another way to save disk space is to limit message length, using the Setup window.

Calling Ahead, and Hanging Up

GeoPort telephony is beginning to hit its stride. Now what's ahead? Faster modems, for one thing. The current GeoPort software is limited to 14.4 Kbps. Apple says it's working on 28.8-Kbps support as well as support for Caller ID and PBX dial tones.

Also on the horizon are telephony-oriented text-to-speech technologies. Apple engineers recently gave me a preview of a version of PlainTalk designed to read E-mail. E-mail is a problem for today's PlainTalk because it is often poorly punctuated and laden with Internet headers that even a masochist wouldn't want to listen to. The software Apple showed me skipped headers and even knew how to translate the most common "smileys"—when it encountered :-), for example, it said "smiley face" instead of "colon, hyphen, right parentheses." You could use this type of software to catch up on your favorite Internet newsgroups—as you wait in traffic with your cellular phone.

One final—and I do mean final—note: this is my last *Working Smart* column. Starting next month, I'll be covering a new beat for *Macworld*. I hope you've found *Working Smart* useful and invite you to join me in my new digs. My thanks to everyone who has written to me; thanks also to my editor, Dan Littman, for helping to shape the column—and for putting up with my own overworked voice-mail system. **m**



The Mac as Telephone Cypress Research's MegaPhone turns a Mac with a GeoPort pod into (clockwise from top left) a speakerphone, an autodialer, and an answering machine.

DESCENT™



Accelerated for
Power Macintosh

Power Macintosh
Required

STEP UP TO DESCENT

... And all other games are doomed.

You've heard of the incredibly popular action game – #1 on the "Top 100 Internet Games" list since it debuted 9 months ago on some other computer platform.

You've heard that the 360° 3-D environment is an incredible simulation of a hoverjet in space.

You've heard that the alien robots' AI is unmatched and your enemies will learn your moves, adjust their attacks, and ambush you from all sides as they lay strategically dormant, just out of sight, waiting for a sneak attack!

And you've heard that it's the most intense multiplayer game in the world, with long distance modem play or deadly fast network play against Power Macs or PCs via Appletalk or MacIPX™.

Winner of the Golden Triad Award, MacPlay and Parallax introduce **Descent** specifically for the Power Macintosh, with new high-res graphics, multiplayer action or head-to-head modem play. It's the one game that will push your Power Macintosh to its limits!

Visit our MacPlay web site at: <http://www.macplay.com> and enter our Mac vs. PC User Group contest!



The only game of its kind with
a 360° 3D environment.



Highly advanced artificial intelligence with
creatures that can adjust their tactics.



30 twisting levels of mechanical
monsters, deadly traps and hidden tunnels.

Developed by
**Parallax
Software**



YOUR PREMIER MACINTOSH GAME SOURCE

MacPlay™

17922 Fitch Avenue,
Irvine, CA 92714 (714) 553-3530

© 1995 Parallax Software. All rights reserved. Descent and MacPlay are trademarks of Interplay Productions. All rights reserved. QuickTime and the QuickTime logo are trademarks of Apple Computer, Inc. Macintosh is a registered trademark of, and the Accelerated for Power Macintosh sticker and Power Macintosh are trademarks of, Apple Computer, Inc. used under license. Portions © 1992-1995 Neveil, Inc., All Rights Reserved.

DEP2

Fax On Demand 1-800-234-0455 ext. 661

Circle 159 on reader service card

Painter 4 Ever!

The Natural-Media® Paint Program
Only \$549 • Upgrade \$149



Fractal Design

Painter 4

Net-Painter for networked artistry!

Enhanced Web design features!

Sensational Shapes! Masterly Mosaics!

For Mac/Power Mac and Windows 3.1 & 95!

Fractal takes you far beyond the

T

ake the most innovative, versatile, easy-to-use paint-and-draw program ever: Fractal Design's Painter®. Add new dimensions of networked creativity. Expand its cutting edge Web design capabilities. Extend its unique Natural-Media® resources. What have you got? Painter 4! • Net-Painter, Painter 4's new collaborative artmaking feature, lets group synergy sizzle in real-time. Painter's World Wide Web page

design tools now include Image maps, with their powerful links from object to object and page to page. • That's not all! Painter 4 reinvents Shapes, letting you add exciting transparency and texture to PostScript® artwork. The amazing Mosaic feature, setting "hand-hewn" tiles as you draw or transform an existing image, is the biggest advance in this ancient art form in 2400 years. • Go for 4! Painter 4 from Fractal Design.

To order, or for more information, call 800-297-COOL, Ext. 1411, Dept. 63A
<http://www.fractal.com>

Copyright 1995 Fractal Design Corporation. All rights reserved. Fractal Design Painter, Natural-Media and Shapes are registered trademarks of Fractal Design Corporation. All other trademarks are the property of their respective holders.



**FRACTAL
DESIGN**
CORPORATION

Fax On Demand 1-800-234-0455 ext. 679



BY LON POOLE

Quick Tips

Tips, Tricks, and Shortcuts

VISUALIZE STARTING UP YOUR MAC WITH System 7.5.1, but in place of the Mac OS logo you see a family portrait, your company logo, or some other image. This dream can come true if you have a resource-editing program such as Apple's ResEdit. Shishir Mehta of Stoughton, Massachusetts, found out that the start-up graphic is a PICT resource in the System 7.5 Update file, and you can easily copy and paste your PICT graphic over the Mac OS logo that Apple supplies.

After using ResEdit to open a copy of the System 7.5 Update file, open the PICT resource that contains the start-up graphic. There are six versions of the graphic for various combinations of monitor size and color depth. Three of the PICT resource graphics, measuring 422 by 323 pixels, are used on monitors 640 by 480 and larger: PICT -16506 is a color graphic for 256 or more grays or colors, -16505 is a gray-scale graphic for 16 grays, and -16504 is a black-and-white graphic for fewer than 16 grays. Three other PICT resources, measuring 321 by 227, are used on smaller monitors: PICT -16503 for 256 or more grays or colors, -16502 for 16 grays, and -16501 for fewer than 16 grays. Open the appropriate PICT resource for your monitor and its color depth (as set in the Monitors control panel), copy the replacement graphic from its source, and paste that graphic into the open PICT resource (see "Custom Start-up Graphic").

Finish by saving changes to the modified System 7.5 Update file and closing it. Before putting the modified file in the System Folder and naming it System 7.5 Update, move the original Update file into another folder. Restart to see your custom start-up graphic.

Note: If the System Folder contains a StartupScreen file, you must remove it to see the start-up graphic.

Making Sense of HQX

Q When I downloaded some software from an anonymous FTP site on the Internet, I got a file whose extension was .hqx. Is this a Binhex file, and if so, how can I use it?

Ari Nave

Beau-Bassin, Mauritius

A Yes, the file-name extension .hqx designates a Binhex file, which you can decode with Aladdin's free utility

(Compact Pro format), .pkg (AppleLink format), .gz or .Z (Unix formats), and .ZIP or .ARC (DOS formats). You can get StuffIt Expander from the Macworld Online software libraries, and it comes with Aladdin's retail product StuffIt Deluxe and with the shareware version StuffIt Lite (versions 3.5).

If you need to decode a large .hqx file, you may get better performance and reliability by allocating more memory to StuffIt Expander. For instance, Morris Tabush of Oakhurst, New Jersey, found that his Centris 610 would take an extremely long time to decode a file larger than 500K, and would then report that there was a problem with the file. Increasing StuffIt Expander's Preferred Size to 2000K eliminated those problems.

Hearing Voices

Q How do I add new voices to my Performa 635CD? It came with only the voice named Fred.

Nate4807@aol.com

A Your Mac's Extensions folder most likely contains Speech Manager 1.3, which enables

speech synthesis and includes the voice named Fred. The additional software you need for more voices is on your hard drive unless someone removed it. Look in the Apple Extras folder (which may simply be named Extras) for a folder named Text-to-Speech. Drag the MacinTalk Pro extension and the Voices folder from the Text-to-Speech folder to the Extensions folder. After restarting the Mac, you'll have about 20 voices from which to

continues



StuffIt Expander. Binhex is an algorithm for representing nontext Macintosh files (such as programs, graphics, spreadsheets, and formatted word processing documents) with plain text so they can be reliably transferred over the Internet. StuffIt Expander can also decode files with the extension .uu (which designates the uuencode algorithm) or .bin (MacBinary algorithm). In addition, StuffIt Expander can decompress files that have the extension .sit or .sea (StuffIt format), .cpt

choose. To hear a particular voice, select it in the application that you use to speak text. For instance, in SimpleText you select a voice from the Voices submenu of the Sound menu.

On some Macs, the Extras folder contains a PlainTalk folder instead of or in addition to a Text-to-Speech folder. Inside the PlainTalk folder is an installer for the complete text-to-speech software. The PlainTalk folder also contains speech-recognition software, but it requires a Power Mac with 16-bit sound input or a Mac 660AV or 840AV.

If you can't find a Text-to-Speech folder or a PlainTalk folder on your hard drive, there are alternate sources. The

System 7.5 CD contains a PlainTalk folder, and the system CDs that come with Macs contain one or both folders. Use the Finder's Find command to search the CD. You can also obtain the latest PlainTalk software (version 1.4.1 at this writing) from Apple's software-updates library on eWorld and the Internet (<ftp://info.apple.com> or <http://www.apple.com>). The best version of PlainTalk for speech recognition on a Power Mac is 1.4.1. On Macs without speech recognition, such as Power Macs with 8-bit sound input like the 5200- and 6200-series models, PlainTalk 1.4.1 offers one minor advantage over PlainTalk 1.3. The text-to-speech part of 1.4.1 includes the Speech control panel,

which lets you set a voice and speaking tempo as a systemwide default. Those systemwide settings are not a standard part of text-to-speech in PlainTalk 1.3. The best version of PlainTalk for a 660AV or 840AV is 1.3, because the speech-recognition software of later versions doesn't work with those Mac models.

Hard Drive Defects

Q Norton Disk Doctor's Get Info command tells me that my Performa 6115CD's hard drive has eight factory defects. I have asked many people, including an Apple technician, if this is a problem, and no one knows. Should I have the hard drive replaced while it's still under warranty?

*Susan Sinigaglio
via the Internet*

A Hard drives are not perfect. Most leave the factory with a few bad sectors, known as factory defects, and with use they develop more bad sectors, known as user defects. Each drive keeps an electronic list of its factory defects and another list of its user defects. The drive never uses the bad sectors on either list. The number of bad sectors rarely if ever amounts to anything substantial. For example, 100 bad sectors would be 0.02 percent of a 250MB drive. You don't need to keep an eye on your hard drive's defects, but you might keep an eye out for a technician who could have explained all this to you.

Centered on the Page

TIP Here's a tip for centering an object or a group of objects between the left and right margins in a page-layout or draw program. To center multiple objects, first arrange them with respect to one another as you want them to be when they are centered on the page. Next draw a line at the right edge of the page and another line at the left edge of the page. Then select both lines and the object or group to be centered, and use the program's alignment command to distribute space evenly between them (see "Bull's-eye"). Finally, hold down the shift key and click the centered object or group to deselect it, and press the delete key to delete the two lines.

*W. Kirk Lutz
via America Online*

Ad Hoc Printing

TIP When traveling with my laptop, I often run into trouble because the place I'm visiting has no printer I can use, nor even two phone lines so my fax modem can call the on-site fax machine.

continues

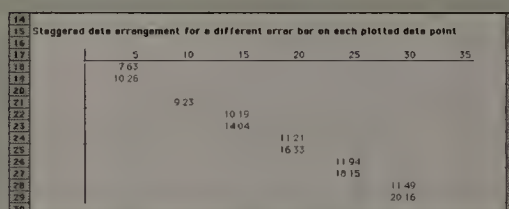
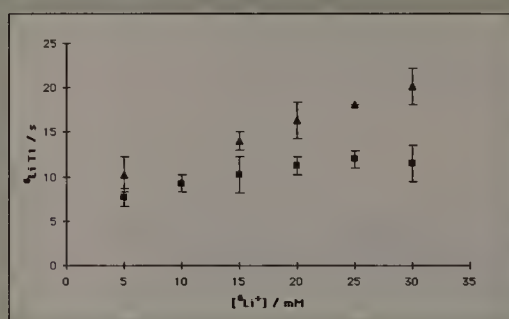
INDIVIDUAL ERROR BARS

It's no big deal in Microsoft Excel 5.0 to add uniform error bars to all points in a data series, but Erik Malewski of Chicago needed an x-y scatter graph with a different error bar for each data point. To produce the chart below, he laid out the data on a worksheet so that Excel's Chart Wizard plotted each data point as a separate data series and gave each "series" its own individual error bar. Here is his procedure.

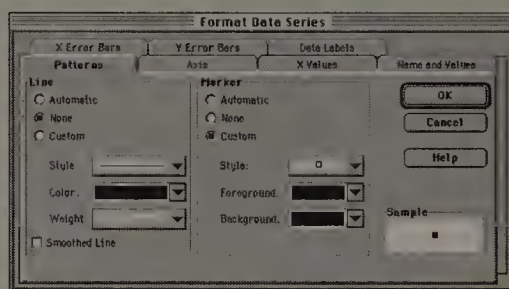
1. Instead of laying out the data conventionally, with x-axis data running down the leftmost column and y-axis data in adjacent columns, enter the x data across a row and stagger the y data in adjacent rows. Arrange the y data stair-step fashion, with each y value in a row by itself (A).

2. Select all the data to be graphed, and click the Chart Wizard tool to begin creating an embedded chart. Set the chart type to s (Scatter); set the chart format to 1; specify that the data series are in rows, and designate the first row to be used for x data. Make all other entries and choices according to how you want your chart to look. Once you've finished, Excel produces a scatter graph in which each data point is a separate data series that you can format independently. Double-click the embedded chart to activate it for editing.

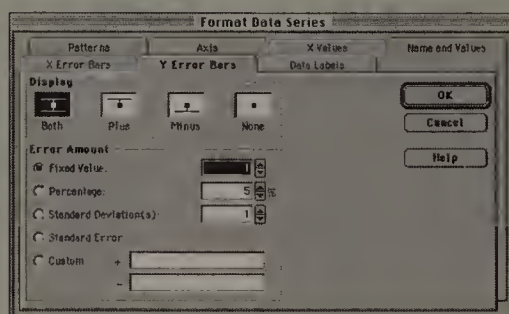
3. Format each data point in turn to have an individual error bar. To format a data point, double-click it to bring up the Format Data Series dialog box. Click the Patterns tab and set the Marker style and colors as appropriate (B). Then click the Y Error Bars tab or the X Error Bars tab, select a display style, and set the error amounts for the error bar (C). Click OK to dismiss the dialog box and go on to the next data point.



(A)



(B)



(C)

Puzzled by how to speed up your network?



Put it all together with Farallon Fast Ethernet!

Fast Ethernet gives you 10 times the bandwidth of 10Mb Ethernet, to support the higher volumes of traffic on your network today. It's what you need for high-bandwidth applications like multimedia, prepress, graphic arts, computer-aided design, and imaging. Farallon's Fast Ethernet cards and hub are based on top-rated technologies from 3Com and Grand Junction, for unsurpassed 100Base-T performance.

It fits perfectly into your network, today and into the future.

Fast EtherTX-10/100™ cards for PCI and NuBus are dual-speed 10/100 adapters which can be installed on 10Base-T or 100Base-T networks. This flexibility lets you prepare for your migration to 100Base-T, so when you upgrade, your Macs will just plug and play. Ready to upgrade now? Pick up Farallon's Fast Starlet 100TX/8™. This affordable 100Mb 8-port workgroup hub has a unique built-in slot for Farallon's optional 10/100 bridge, so connecting to your 10Base-T network is a snap. This high-performance hub is the only solution that protects your network investment by integrating 10Mb and 100Mb networks.

Putting it together is easier than you think.

Farallon Fast Ethernet gives you true plug-and-play installation in moments.

Fast EtherTX-10/100 cards offer built-in drivers, so no software installation is needed. Just plug the NuBus or PCI card into your Macintosh, connect it to your hub, and you're networked! Fast EtherTX-10/100 cards support the Open Firmware and Open Transport standards for compatibility with standard Apple software. And the Fast Starlet 100TX/8 can connect easily to your existing 10Base-T or 100Base-T network. With hardware and software solutions for every network, Farallon puts it all together for you—the right way.

Farallon gives you everything you need to create a Fast Ethernet workgroup that easily integrates with your 10Mb LAN.

For more information—call today!

Ask for your free copy of Farallon's Fast Ethernet white paper.

1-800-803-8212

Farallon®

<http://www.farallon.com>

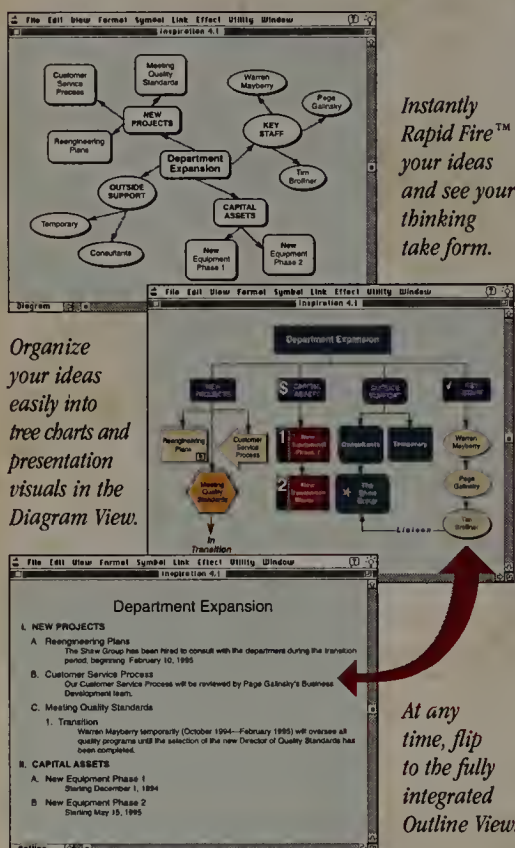
Product	Part No.	Estimated Street Price	Available
Fast EtherTX-10/100 PCI	PN994	\$249	NOW!
Fast EtherTX-10/100 NuBus	PN990	\$329	NOW!
Fast Starlet 100TX/8	PN915/8-1	\$1,499	NOW!
with built-in 10/100 Bridge	PN925/8-1	\$2,199	NOW!
Fast 10/100 Bridge	PN925	\$999	NOW!



America Online and AppleLink ID: Farallon; eWorld ID: Farallon50; Internet ID: info@farallon.com; All trademarks are the property of their respective owners. Copyright © 1995 Farallon Computing, Inc. All rights reserved.

Instantly Visualize Concepts

Getting clear and focused right at the start of a project is often the most difficult part. The next time you begin to develop an idea or plan, use Inspiration®—the real-time idea development tool for quickly clarifying and organizing your thoughts.



Call (800)877-4292
to request your
FREE IDEA BOOKLETS

Instant Idea Clarification · Quality Diagrams & Process Flows
Effective Idea Meetings · Quick Presentation Visuals

Inspiration®
The Real-Time Idea Development Tool

Inspiration Software®, Inc.
503.297.3004 Tel. • 503.297.4676 Fax
Web Site <http://www.inspiration.com>

©1995 Inspiration Software®, Inc.

To work around this, I connect my fax modem directly to a fax machine—without ever dialing a number—and use my fax software to print on the fax machine. Here is the procedure.

1. Place the fax modem close enough for the fax machine's phone cord to reach the modem. Leave the fax machine plugged into the wall jack for now so it will produce a dial tone in the next step.

2. Follow your fax software's usual procedure to manually fax the document. For best results set your fax software to send a gray-scale fax if it has that capability. Send it to any recipient, but don't actually dial the phone number.

3. Take the fax machine off-hook, and when you hear a dial tone, press the send/receive button so the machine goes online to receive. When you hear the fax tones, unplug the fax machine's phone cord from the wall jack and plug it into the line-in jack of the fax modem.

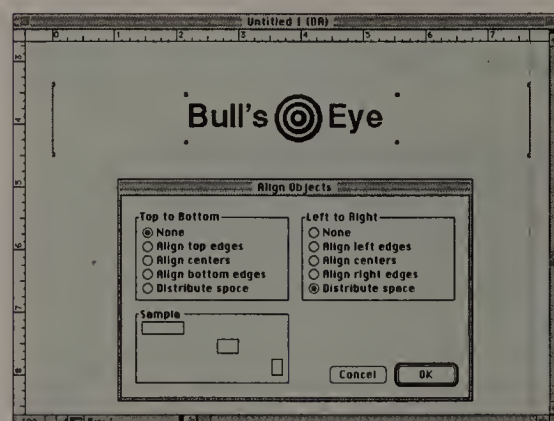
4. On the Mac, click the button that indicates you have made a successful manual connection. The fax modem begins sending the document to the fax machine.

If these steps involve too much plugging and unplugging of phone cords for you, here's an alternative. Take along a duplex adapter that converts a single phone jack into two jacks. Plug the adapter into the wall jack, and plug both the fax machine and the fax modem into the adapter. Immediately after you click your fax software's manual-connection button, unplug the adapter from the wall jack, leaving the fax modem and the fax machine connected to the adapter so they can continue communicating.

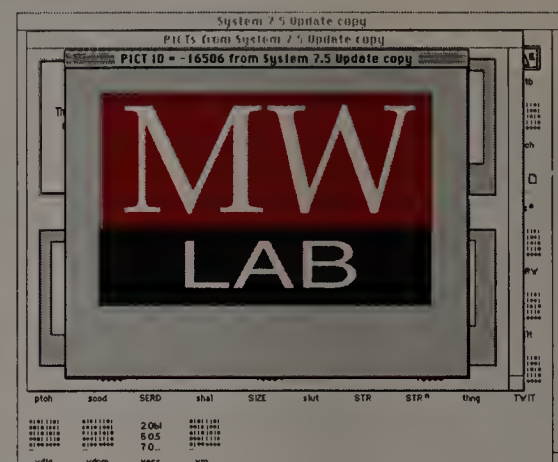
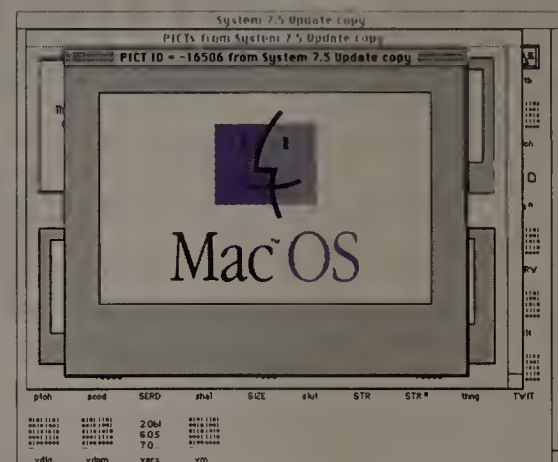
*Frost Nuzum
Monroe, Iowa*

Batch Copy or Delete

TIP Have you ever heard this jibe from a Windows user? "At least in Windows you can delete or copy a batch of files by typing a command such as `Copy C:\draw\*.eps D:`." With Mac OS version 7.5 and later, you can use Find



Bull's Eye You can center an object on the page in a page-layout or drawing program by using the program's alignment command to distribute space between temporary lines you draw at the margins.



Custom Start-up Graphic The Mac OS start-up graphic is a resource in the System 7.5 Update file (top). You can replace it by copying another PICT graphic and using ResEdit to paste it into the appropriate PICT resource (bottom). For best results, leave space at the bottom center of the replacement graphic for the progress gauge that appears there during start-up.

File in the Apple menu (or Find in the Finder's File menu) to find a batch of files from multiple folders on one disk or on multiple disks. Then you can select all or any part of the found items and drag the batch from the Find File window to the Trash or to any disk or folder. I recently discovered this convenient capability when I had to copy 100 files whose names ended with .eps from several folders to a single Zip disk.

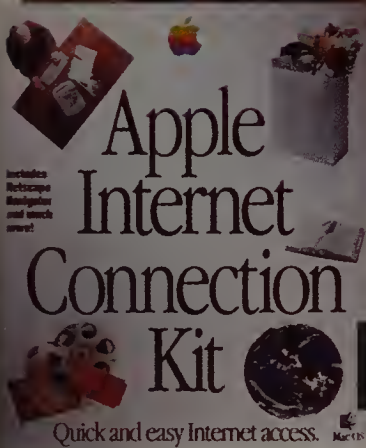
*Paul Rubin
Edison, New Jersey*

If you haven't yet upgraded to System 7.5, Find File is about all the reason you need.—L.P. **m**

We pay from \$25 to \$100 for tips published here. Send questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to *Quick Tips*, Lon Poole, at the address listed in *How to Contact Macworld* at the front of the magazine (include your address and phone number). All published submissions become the property of *Macworld*. Due to the high volume of mail received, we're unable to provide personal responses.

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld System 7.5 Bible*, third edition (IDG Books Worldwide, 1994).

Until now, the on-ramps to the Internet have been under construction.



Introducing the Apple Internet Connection Kit.

Getting hooked up to the Internet can be a messy process. That is unless you've got exactly the right tools. Presenting the Apple® Internet Connection Kit. It's everything you need to get on and get around the Internet quickly, easily and with a minimum of frustration. Here's what you receive: Netscape Navigator™, Claris EMailer™ Lite, Progressive Networks RealAudio, NewsWatcher, Fetch, the Apple Internet Dialer, Quicktime® VR Player and more. Plus, if you come across anything you don't understand, Apple Guide on-line help is there to assist you right away.

Just think, 30 minutes after opening the box, you could be participating in discussion groups, E-mailing Aunt Helga in Denmark, visiting the Louvre, the Library of Congress or maybe even the local chicken joint. (Seems like everybody's got a Web site nowadays.)

Visit your Apple reseller, or order direct by calling **1-800-950-5382 ext. 784**. And when you do get on the Net, check out our Web site at <http://www.apple.com>.

Apple. The power to be your best.

CLARIS
Em@iler



NETSCAPE



EDITED BY ELIZABETH DOUGHERTY

Networks

THE LATEST IN CONNECTIVITY AND COMMUNICATIONS

Waiting for ARA 3.0

MANY USERS DEPEND ON APPLE Remote Access (ARA) to connect a remote Macintosh to an AppleTalk network over the phone line. Once connected, ARA works just like a network, aside from speed limitations imposed by modems and phone lines. But the current version, 2.0, supports only the AppleTalk protocol on Macs, so it's limited to pure Macintosh networks.

Promises, Promises Apple promised ARA 3.0 for 1994; now it's scheduled for the first half of 1996. The much-anticipated new feature in 3.0 is support for Point-to-Point Protocol (PPP), the communications protocol used by many Internet connections and supported by nearly all desktop computers and workstations. ARA 3.0 depends on Open Transport, Apple's new standard software interface for dealing with communications plumbing such as modems and network cabling. But Open Transport was delayed and at the moment ships only with the new PCI-based Power Macs.

At press time, Apple planned to ship Open Transport 1.1 around the end of 1995 or in early 1996 (see "Open Transport Still Falls Short," *Networks* news, December 1995). This updated version will support all Power Macs, 68030 Macs, and 68040 Macs (68000 and 68020 Mac owners are out of luck). ARA 3.0 should follow after Open Transport 1.1.

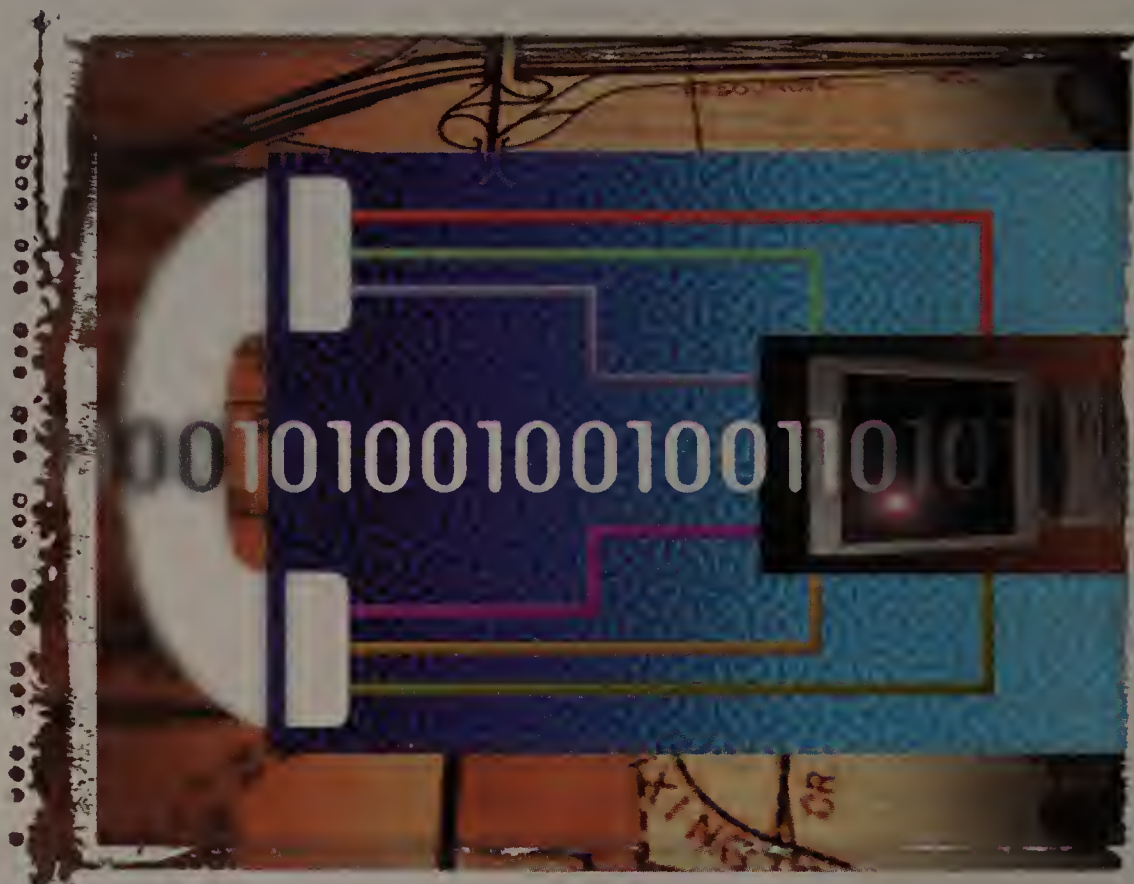
Apple has been embarrassed by the many delays in releasing communications products, especially Open Transport and ARA 3.0. "You don't need to write me and tell me which [development decisions] were bone-headed, ill-advised, or stupid. In retrospect, I can tell that all by myself," says a private Apple memo to several outside developers on the delays.

The PPP Advantage In PPP, AppleTalk traffic travels as embedded packets,

so all standard Mac network functions will work. Users in mixed computing environments can embed all common PC and Unix network protocols within PPP; a single connection can carry many different protocols. And PPP will let users connect to networks over the Internet as well. PPP is also the standard remote-access protocol in Windows 95. Miramar (805/966-2432) plans an ARA client for Windows 95.

One independent developer is already planning to enhance ARA 3.0. ARACommander 3.0 from Trilobyte Software (513/777-6641; trilo@one.net) lets you place a button in OpenDoc documents that, when clicked, initiates a communications link, over a network or by modem, that imports new information using ARA 3.0. Whenever ARA 3.0 ships, that is.

—CARY LU



ISDN: Something for Everyone

THANKS TO THE ACCELERATING spread of ISDN digital phone service across the country, many manufacturers are racing to expand their product lines to serve every possible ISDN user, from those who want faster Internet access, to telecommuters at their home desktops, to enterprisewide networks.

- Touting the results of its recent acquisition of Spider Systems, an ISDN hardware manufacturer based in Edinburgh, Scotland, Shiva (617/270-8300) has introduced the ShivaIntegrator 100, a single-line ISDN access server designed for small offices. The \$1299 unit supports

data transfer at speeds up to 128 Kbps. The \$11,999 ShivaIntegrator 500 supports Primary Rate ISDN (PRI), Basic Rate ISDN (BRI), X.25, and V.35. The three-port device has two PRI interfaces and one leased-line interface.

Both units include Shiva's Tariff Management software, which helps companies manage their WAN phone bills with on-demand digital services such as ISDN. The software drops the line when there's no network traffic, and reconnects when the link is needed. It also provides data compression, connection prioritization, and IP spoofing (which prevents network "housekeeping" information from being sent over the ISDN link).

- 3Com (408/764-5000) has weighed in with new products for consumers and the SOHO (small office/home office) market. Its newly upgraded 3Com Impact series of external digital modems list at \$649 and now support Multilink PPP for full 128-Kbps connections from ISDN's two B channels. An extra \$100 gets you a model with a built-in 14.4-Kbps analog modem.

The \$3495 3Com AccessBuilder 4000 is a multiprotocol remote-access server that supports dial-in from Macintosh, Novell, and Windows clients, and performs bridging and routing. The AccessBuilder 4000 supports up to eight ISDN lines. For SOHO Ethernet networks that need to connect to a corporate LAN, the new 3Com Arpeggio family provides TCP/IP and IPX routing and PPP bridging, along with a standard phone jack.

- Ascend Communications' new Max

200 (510/769-6001) is a remote-access server that supports Apple Remote Access (ARA), TCP/IP, and PPP, giving users access to an Ethernet LAN. Dial-up is handled via eight PC Card (formerly PCMCIA) slots, in which you can install any combination of ISDN, analog modem, or frame-relay cards. List price is \$2400, plus the cost of the PC Cards.



DOUG ROSS

- In a bid for the market's lower end, Cisco Systems (408/526-4000) has introduced the CiscoPro line, kicked off by the CPA753, an Ethernet-based ISDN TCP/IP router and bridge with one standard phone jack. The unit supports split B-channels, so two users on the local Ethernet network can use the two ISDN B channels independently to connect to different sites. Pricing is \$1200 for a version that handles up to four users, and \$1500 for unlimited users.—TOM NEGRINO

Finally, Rock Computes

STILL TRYING TO EXPLAIN WOODstock to your kids? Or Nine Inch Nails to your parents? Time for a family vacation to Cleveland and the Rock and Roll Hall of Fame and Museum, where the whole crew can explore this collection of rock-'n'-roll memorabilia at one

of the museum's 24 networked interactive kiosks.

With more than 30GB of multimedia materials to offer, the museum needed a flexible delivery system that could be expanded and adapted as the collection changes. Static kiosks wouldn't do, so instead the museum chose a speedy 100BaseT Ethernet network that plugs the museum's 24 AV Mac-based kiosks into a Sun Sparc-20 workstation. StarLight Networks' StarWorks software (415/967-2774) serves QuickTime multimedia files at speeds up to 10 Mbps so visitors won't miss a single video frame as the artist formerly known as Prince shows off his very best James Brown moves.

As bandwidth improves,

IN BRIEF

■ **When Your Network Talks Back** If you hear voices in your computer room, don't panic, yet. AG Group's (510/937-7900; info@aggroup.com) NetMeter lets you use Speech Manager voices, music, QuickTime movies, and graphics (such as a traffic light) to quickly relay Ethernet network data. For example, you can configure NetMeter to hum quietly when your network traffic is within normal parameters and clang loudly when traffic exceeds your preset boundaries. NetMeter displays network data gathered by the firm's Satellite software agents. You need to install Satellite on a Mac on each Ethernet segment being monitored.

■ **Microsoft Mail for Mac** StarNine Technologies (510/649-4949; info@starnine.com) has signed an agreement with Microsoft to take over development, marketing, and support for Microsoft Mail for AppleTalk Networks, now renamed StarNine Mail. StarNine said a native Power Macintosh version would be available in the first quarter of 1996.

■ **Bridge the Gap** Not so long ago, connecting a slower printer to a faster network required a LocalTalk-to-Ethernet bridge; now it can mean bridging a 10-Mbps Ethernet device to a 100-Mbps network. Dayna Communications (801/269-7200; support@dayna.com) plans to offer in December 1995 a \$500 single-address bridge to connect a 10BaseT device, like a printer or notebook, to a 100BaseTX network.

Asanté Technologies (408/435-8388) has introduced a product that lets you bridge an entire 10BaseT network, rather than one device, to a Fast Ethernet network. The \$1395 AsantéFast 10/100 Bridge was scheduled to begin shipping in November 1995.

the museum expects to extend this networked approach to its Web site (<http://www.rockhall.com/>), spreading the rock 'n' roll gospel to the networked masses on many platforms. The Reverend Al Green would approve.

—MATTHEW HAWN



THE BURDICK GROUP, SAN FRANCISCO



Our innie just became an outie.

It's time to start looking at things from the outside in. Apple's new PowerBooks now come with



PowerPort PC Cards are designed specifically for Apple's new PowerBook 5300 and 190 series.

PC Card slots for increased functionality. So, instead of installing an internal fax/modem, now you just slip in one of our new PowerPort™ PC Cards. But, at Global Village, we haven't just changed our shape.

PowerPort PC Cards provide unmatched power and ease of use. Our exclusive PC Card

Enhancement software features plug-and-play setup, on-line help, and convenient access to

communication applications. Plus, our intuitive GlobalFax™ software makes faxing hassle-free. And with 28.8 Kbps performance, you'll get more done in less time.

Global Village modems are used in more PowerBooks than any other brand. It's

because no products make communicating easier. The PowerPort PC Card line is no exception. In fact, our dual-function PowerPort Platinum™ Pro



On the road or in the office, anywhere you roam, we keep you connected with our dual-function fax/modem and Ethernet card.

can be used simultaneously as a cellular-ready modem

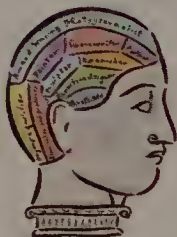
and Ethernet adapter. So you can use the modem while connected to your network.

For the inside scoop, just call us

Our award-winning GlobalFax software is full of features perfect for the mobile user.



at 1-800-736-4821, ext. 2459. Or visit our Web site at <http://www.globalvillage.com/pccards.html>. We've got a brand-new shape, but it's pure Global Village.



Every detail of the Global Village software experience is designed with you in mind, from start-up to shutdown.



GLOBAL VILLAGE
COMMUNICATION



BY CARY LU

PowerBook Notes

The All-Purpose PowerBook

ALTHOUGH POWERBOOKS ARE FULL-fledged computers in their own right, most PowerBook users also have a desktop Mac. But you're not getting the most out of your PowerBook if you use it only when you're out of the office. A PowerBook can be useful for communications, file serving, backup, and much more—even when your desktop Mac is nearby.

Network Connection

The simplest way to connect a PowerBook to a desktop Mac is via a LocalTalk cable. The most popular form of this cable is a PhoneNet connector, available from Farallon Computing (510/814-8000) and its licensees. Simply leave a PhoneNet connector where you park your PowerBook and connect it whenever you're in your office. If you're connecting one PowerBook to one desktop Mac, you can use a serial printer cable. However, this type of connection eliminates a safety feature; a LocalTalk interface box's isolation transformer prevents miswired power lines from damaging networked desktop Macs. But because a PowerBook running on batteries or an AC adapter is isolated from the AC power line, using a serial cable isn't a problem if at least one of the networked computers is a PowerBook.

Although LocalTalk is convenient, it does take up the only serial port that many PowerBook models have. The new PowerBook 5300 models with infrared interfaces can connect to LocalTalk without tying up the serial port, but you will still need a desktop LocalTalk node with an infrared interface. For now, this means getting the \$69 AirDock Infrared Adapter from Farallon and plugging it into your desktop Mac's serial port for information transfer at full LocalTalk speed and into the ADB port for power. All the network functions available to the desktop Macintosh are now extended to the infrared-connected PowerBook. Of course, the host Macintosh must be running and able to manage the connec-

tion—you can't be installing new system software, for example, and many people can't spare a serial port for the AirDock. In the future, freestanding infrared nodes for LocalTalk could provide network access without requiring a host Mac, albeit at a greater cost.

LocalTalk is no match for Ethernet (or EtherTalk, in AppleTalk parlance),



which runs five to eight times faster. Ethernet means a wired connection, unless you choose one of the wireless Ethernet systems that are both more expensive and slower than wired Ethernet (see *PowerBook Notes*, December 1994). PowerBooks with built-in Ethernet (the 500 series) and those that support Ethernet through a PC Card or video card connector (5300's and 190's) or via a dock (Duos) work about twice as fast as PowerBooks that use a SCSI interface for Ethernet. The Ethernet adapters that connect to a serial port run the slowest, although they're still faster than LocalTalk.

It's possible, through either a router or a bridge, to mix Ethernet and LocalTalk (the AirDock comes with LocalTalk-to-EtherTalk connection software). Although this is a workable solution, for

speed and simplicity you're better off getting all Ethernet nodes.

Plugging and unplugging cables whenever you take away or bring back your PowerBook gets to be a nuisance. For the Duos, a dock makes connecting a one-step process. For the other PowerBooks, Pilot (612/828-6002; pilottech@aol.com) has BookEndz docking stations that perform a similar function (\$129 to \$189, depending on the configuration). Once you've set up a BookEndz dock, you simply slide in your PowerBook and it's instantly connected. Regardless of your PowerBook model, keeping a second AC adapter in your carrying case makes switching between office and travel easier.

Managing Files

Frequently shuttling between a PowerBook and a desktop Mac means keeping both sets of files up-to-date so that you always have the most recent version. One way to do that is to set file sharing on the desktop Mac while it's networked to the PowerBook, so both computers work from a single set of files. File sharing does have its drawbacks, though; you won't be able to change disk cartridges and CDs readily—you have to turn off file sharing first. The alternative is Timbuktu Pro from Farallon (\$199), which lets you send files, Clipboard contents, and messages back and forth without turning on file sharing.

No matter how you exchange files, when you take the PowerBook away from your desk, it must have the updated files you need. You can simply move a folder or group of folders, overwriting older documents, which is quick and easy to do if you need only a handful of files. But if you need to update many scattered files, the process can take considerable time—even over Ethernet—and you run the risk of forgetting to update some crucial files. That's where file-synchronization software comes in. Synchronization programs have not sold well—few PowerBook owners use them—but they do automate the

continues

update process and solve the problem of forgetting files during a manual update. Apple's File Assistant, included with PowerBooks, does basic synchronization. For a much more powerful set of features, including PowerPC native code, get PowerMerge from Leader Technology (\$129 list/\$79 street; 714/757-1787, leadertech@aol.com). And synchronization programs provide backup services as well.

As hard drives store ever more information, finding the right file has become a challenge. The Find File command in System 7 and particularly in 7.5 does a good job of finding files by name, but what about finding a file by its contents? Just where did you store a particular note? Sonar Text Retrieval, \$295 from Virginia Systems (804/739-3200), does an outstanding job of finding files by content. You can search by word and phrase with Boolean functions for any mounted disk, including file-shared disks. Sonar is fast because it indexes the files and folders that you specify; programs that find text by literally reading the entire contents of a

disk are far slower. Virginia Systems says Sonar can search 10,000 pages per second. The program runs on both 680X0 and Power Macs and reads the latest file formats. The more comprehensive Sonar Image includes support for graphics, making it a full-fledged document-management program. On Location from On Technology (617/876-0900), a simpler content-indexing and -retrieval program, has not been updated since 1992. Alki Seek at \$39.95 (Alki Software, 206/286-2600) will also search contents, but it is much slower since it does not index.

Communications via Infrared

VST offers an unusual two-part Airplex modem. One part is on a PC Card that communicates via infrared to the other part, which contains the actual modem. The initial version of the Airplex modem runs at 14.4 Kbps; a 28.8-Kbps version should be available in early 1996. The \$549.95 Airplex inevitably costs more than other modems, but it makes sense in offices where a single modem is likely to

accommodate multiple PowerBooks—at different times, of course, since it can handle only one at a time.

Recording Audio

MicMac version 3.1 from Nirvana Research (\$89; 408/459-9663) turns any PowerBook with a microphone or sound input into an audio recorder. You can mark and annotate specific points during recording for quick retrieval. It's much handier than carrying a separate tape recorder for meetings, conferences, or even telephone calls, provided you have sufficient disk space to store the recording. A minute of high-quality sound takes up about 1.2MB; highly compressed, low-quality sound uses only 200K.

Although nearly all PowerBooks have a built-in microphone (the 100 and the 150 are the only exceptions), the audio quality leaves a lot to be desired. For some reason, Apple keeps putting the microphone near the screen hinge; a far better location would be at the top of the screen, as far as possible from the noisy hard drive and keyboard. For the best-quality sound, get an external microphone and place it as far away as possible from the PowerBook.

For all PowerBooks from the 140 through the 180 (except the 150), the audio-input plug is designed to take microphone-level signals from Apple's external microphone, which was bundled with some early PowerBook models. (See *PowerBook Notes*, March 1994, for more about microphones and audio connectors.)

Later PowerBooks—500's and 5300's—have line-level audio input, so a microphone signal must go through a preamp first. (The 190 lacks an audio-input jack.) Some electret condenser microphones can just barely deliver enough signal without a preamp to produce a weak recording. You really need a microphone with a built-in preamp; the only one available today is Apple's monaural PlainTalk mike. But the PlainTalk has an unusual, long plug with a power connection at the tip, and needs an adapter for use with a PowerBook. I know of no such product, but if you are handy with a soldering iron, you can make a cable adapter from standard components (see "A Recipe for High-Quality Audio").

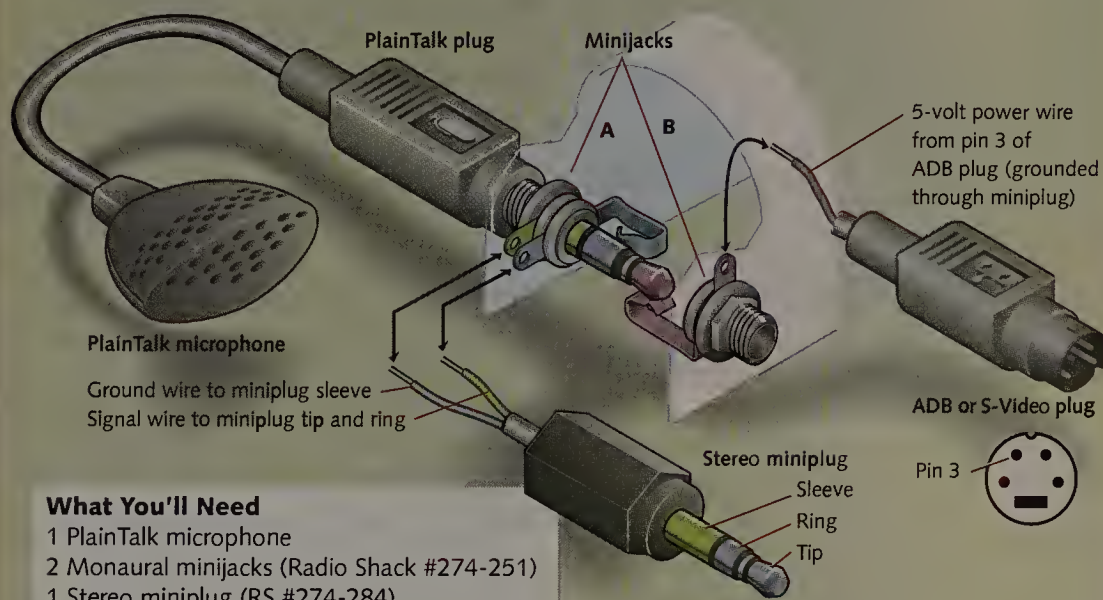
A Closing Note

This is the 36th and final *PowerBook Notes* column. I will continue writing about PowerBooks elsewhere in *Macworld*. **m**

CARY LU is a *Macworld* contributing editor who, for the past three years, has covered mobile- and remote-computing trends in this monthly column. Look for his articles on a variety of topics in future issues of *Macworld*.

A Recipe for High-Quality Audio

A PowerBook's audio-in port cannot accommodate a PlainTalk microphone either mechanically or electrically, and a cable adapter for the PlainTalk plug is impossible to find. You can, however, make your own by using two standard minijacks to mate with a PlainTalk plug. The minijacks must be open to allow the PlainTalk plug to go all the way through. The ADB port provides a convenient source of power.



What You'll Need

- 1 PlainTalk microphone
- 2 Monaural minijacks (Radio Shack #274-251)
- 1 Stereo miniplug (RS #274-284)
- 1 ADB plug or S-Video plug
- 1 Plastic container with two parallel sides (such as a tape dispenser)

- 1) Start with a plastic container whose sides are about 0.8-inch apart—the exact spacing depends on the minijack mounting. (A dispenser for 0.5-inch-wide tape works for Radio Shack minijacks.) Make two in-line holes, by drilling through both sides of the container, and mount the minijacks back-to-back in these holes. This will allow one minijack to contact the sleeve and ring of the PlainTalk plug and the other to contact the tip.
- 2) Ground: Connect minijack A's sleeve (which contacts the PlainTalk plug's sleeve) to the stereo miniplug's sleeve.
- 3) Microphone signal: Connect minijack A's tip

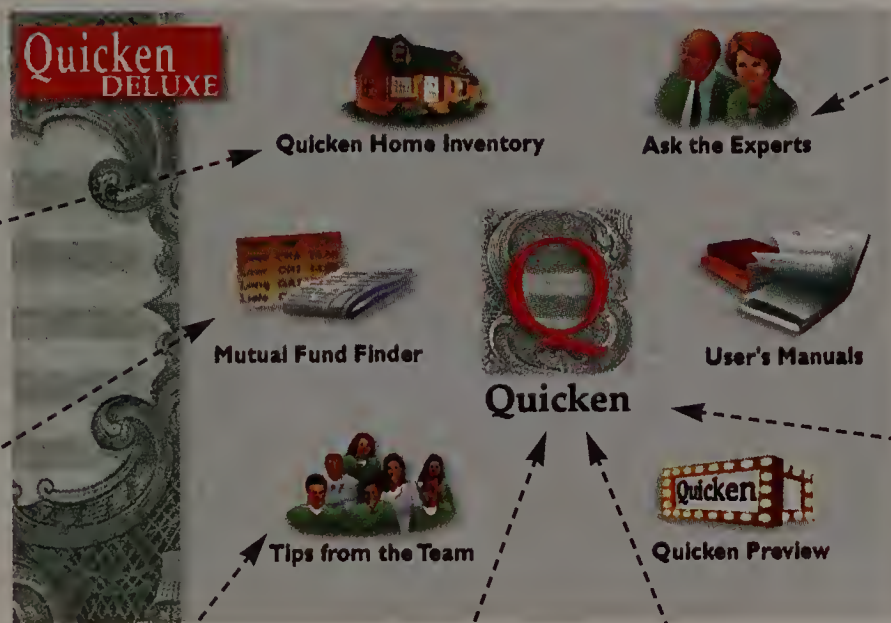
(PlainTalk plug's ring) to the stereo miniplug's tip and ring; the signal goes to both left and right channels.

- 4) Power: Connect minijack B's tip (PlainTalk plug's tip) to pin three of the ADB or S-Video connector. (The stereo miniplug provides the ground connection.) Use an ADB splitter if you're already using the ADB port for a mouse or another device.

- 5) Insert the stereo miniplug into the PowerBook's audio-in port and connect the ADB plug.

- 6) Open the Sound control panel. Select Sound In (from the pull-down menu), click on the Options button, and then click on Line In.

CAN YOUR QUICKEN® DO ALL THIS?



IT'S QUICK AND EASY TO TRACK YOUR POSSESSIONS! Just make choices from the Home Inventory list, and you're done in no time! Great for insurance purposes.

ASK THE EXPERTS - AND GET "LIVE," PERSONALIZED ADVICE. Should you buy a house? Should you invest in stocks? Financial writers Jane Bryant Quinn and Marshall Loeb answer questions like these and more—based on your age, income and personal financial situation.

FIND THE MUTUAL FUNDS THAT ARE RIGHT FOR YOU. Quicken searches more than 4,400 funds to find the ones that fit your needs.

GET NEW IDEAS FROM THE TEAM THAT CREATED QUICKEN. A multimedia presentation full of hints and shortcuts from the people who developed Quicken Deluxe helps you get the most out of your new software.

ENJOY NEW POWER AND EASE THROUGHOUT THE PROGRAM. You can see your whole portfolio on the screen at once...consolidate it for easier viewing...and much more! Clear splits with a click...easily hide accounts... enter dates without a slash.

BUDGETS ARE EASIER AND FASTER THAN EVER! New Quicken 6 simplifies budgeting. Generate instant budgets based on your average income and expenses. Make "tweaks" where you need to, and you're all set!

Special upgrade offer for Quicken users:

Quicken Deluxe 5 for Macintosh on CD-ROM just **\$49.95** Direct (plus \$5 shipping & handling)

Satisfaction Guaranteed. If you don't agree this is the best Quicken upgrade ever, simply return it within 90 days for a full refund. Your order is risk-free!



Introducing Quicken Deluxe on CD-ROM.

FREE ONLINE BANKING SOFTWARE INCLUDED WITH YOUR ORDER! Now you can download transactions directly into your register, view your accounts, transfer money between accounts and pay bills online.

Call now to order: 1-800-816-4456 Ext. 810 378

INTERNET: [HTTP://WWW.INTUIT.COM/QUICKEN](http://www.intuit.com/quicken) FOR CANADIAN ORDERS CALL: 1-800-538-9693 EXT. 500 187

Add all applicable sales tax based on your 'ship to' address. Please add \$3.50 S/H for each additional product ordered. Offer expires 1/31/96. To order by check, mail to Intuit, Inc., 2650 E. Elvira, Suite 100, Tucson AZ 85706. Please include applicable local sales tax. All Intuit products come with a 90-day, money-back guarantee. Call to order 24 hours a day, 7 days a week. All orders must have a "ship to" address in the USA or Canada. Fax: 520-295-3015. Quicken is a registered trademark of Intuit, Inc. Quicken Deluxe 6 on CD-ROM requires: Macintosh computer with 68030 or faster processor; System 7.0 or higher; 8 MB installed RAM; 640 x 480 monitor resolution (includes 13-inch or larger monitors), 256 colors; double-speed or faster CD-ROM drive; 16 MB free disk space. Quicken 6 for Macintosh requires 4 MB RAM with System 7.0 or 7.1; 8 MB RAM with System 7.5 or higher. Power Macintosh is a trademark of Apple Computer, Inc.

©1995 Intuit Inc.

It's no fun being the BEST unless you get to tell Someone.

BY ADVERTISING IN MACWORLD,

KELLY MORRISSEY, MARKETING COMMUNICATIONS MANAGER AT AGFA, TELLS 650,000 LOYAL MACWORLD READERS THAT AGFA IS THE INDUSTRY LEADER IN SCANNER TECHNOLOGY. "WITH OUR PREMIER STANDING IN THE ELECTRONIC PUBLISHING INDUSTRY, MACWORLD—THE PREMIER MACINTOSH AUTHORITY—AND AGFA MAKE THE PERFECT MATCH



KELLY MORRISSEY
MANAGER MARKETING COMMUNICATIONS,
ADVERTISING, PUBLIC RELATIONS
AGFA DIVISION, BAYER CORPORATION

tell 650,000 buyers

MACWORLD
THE PREMIER AUTHORITY



Let's Do Launch

Launcher—and other icon-launching pads

DID YOU EVER THINK LAUNCHER was designed for toddlers and technophobes? I did. There it floated on every Performa: a window containing oversize application icons that would open with a single click, for those who found double-clicking too tricky a task.

When Apple actually incorporated it into System 7.5, I realized that there must be a lot more to Launcher than I had imagined. I tried it—and loved it.

With my most frequently used icons always handy, I spend less time burrowing into folders. Yes, yes, I know the Apple menu can serve the same purpose; but that one-click-to-launch business is a lot less effort. I know, too, that I could build my own launchpad by putting a bunch of aliases into a window, but seeing my stuff safely ensconced in a solid, symmetrical, space-saving station is much more satisfying to my psyche.

But Apple's Launcher isn't the only launcher—nor the best. Here are nine cases in point. (Because most of these programs offer one set or another of the same features, I'll conserve paper by referring to them by number.) Unless otherwise noted, the launchers all work alike: you drag favorite folders, programs, documents, disks, and other icons onto a floating palette, where they turn into tiles you can click for quick future access (either to launch a program or—if it's already open—to switch to it). Note that most of these launchers require System 7.5 or later to realize all this drag-and-drop joy.

Launcher 2.7

As I've said, today's Launcher (in System 7.5.1 or later) is nothing to sneeze at. You can change icon sizes by $\mathbb{H}$ -clicking anywhere in Launcher's window. You can install an icon by dragging it there and remove it by option-dragging.

Best of all, Launcher offers one feature still unmatched by any of its rivals: *pages*. You can flip effortlessly among several screens full of Launcher icons by clicking on the appropriately named, color-coded topic buttons at the top of the

window. You can have up to eight pages, and the names are up to you.

So what's not to like? Well, Launcher is slow; when you change pages, even on a Power Mac, you watch the icon buttons paint themselves across the screen. And it's a control panel, not a conflict-free application. And there's wasted space: a fat margin between all your tiles. Since many of the superior, rival programs are free, what are you waiting for?

The Tilery 3.1

Applicon, the application-switching masterpiece from Rick Holzgrafe (Semicolon Software), has become The Tilery, and it's one of the sweetest and simplest launchpads in existence. Whenever you want to



open something on your palette, or to switch between open programs, just flick your mouse into a designated corner of the screen; The Tilery tiles pop to the foreground. You'll probably never use your application menu again.

That's feature number 7 on the Launcher Feature Table. The Tilery also offers 2, 6, 11, 12, and 15—not bad for a freebie. And feature 14: in a stroke of design brilliance, the tiles of launched programs appear in a different color.

Two unusual aspects of The Tilery merit mention, one good and one ill. For

some strange reason, you can't turn *disks* into tiles, depriving this launcher of one potentially terrific feature—the ability to mount a network hard drive onto your screen with a click. But this is the only program that lets you drag your tiles freely around the screen, scattering them all over your desktop if you're so inclined.

Malph 2.4.1

Nitin Ganatra's Malph is nearly identical to The Tilery: it's free, uses only 150K of RAM, and uses different tile colors to indicate launched programs. It adds, however, a second palette that controls Malph itself: tiles for adding a program, deleting it, quitting, and so on. I love being able to quit programs by remote control (feature 13), but I'd prefer not to have to stare at a separate palette for the privilege. Malph also offers features 2, 7, 12, and 15.

HoverBar 1.2.4

I wish that all the launcher programmers would scurry back to the compiler and add HoverBar's neatest feature to their creations: when you click on a tile while pressing a specified key, you *quit* that program instead of launching it. I also like the fact that you can summon or dismiss HoverBar's palette with a keystroke (although I wish it could hide itself after a launch). This shareware launcher (Guy Fullerton;

\$5) is crawling with neat productivity features, such as a hidden palette-control pop-up menu.

But despite its inclusion of features 6, 9, 10, 13, and 15, I'm afraid this icon dock won't hover for very long on *my* screen. It lacks one whoppingly important feature: the icons in the palette don't show their names! To identify what you're about to open, you must point to an icon. When you're looking at a bunch of identical folders, that's about as inconvenient as life gets. A rare example of a dock missing the boat.

continues

DragThing 1.0.2

Shareware programmer James Thomson doesn't want postcards or cash as payment—instead, you're asked to send the author "cool stuff."

No problem. DragThing is a gorgeous, feature-laden productivity enhancer. Typical design cleverness: drag the palette's edges to reshape it. Make it bigger than your existing group of tiles, and blank tiles appear, ready for loading up. To remove tiles, just drag them to the Trash. If you press certain keys while clicking on tiles, you access various useful hidden functions: getting info on an icon, opening its Finder window, and so on.

I have two small gripes. First: If you want to know what programs are running, you must consult a second palette (instead of a cleaner, color-coded approach). Second: DragThing itself takes way too long to launch. Still, you get features 1, 2, 5 through 7, 12, 14, and 15. Cool stuff.

PowerBar Pro 2.0

When shareware and commercialware collide. On the next *Oprah*.

This labor of obvious love, from Scott Johnson (Trilobyte Software), offers power-user features usually found only in commercial launchers. Example: You get handy Finder-action tiles, such as Move to Trash, Empty Trash, and Restart. Tiles can launch QuickKeys macros, System 7.5's Control Strip modules, or even other PowerBar palettes. You're offered dozens of stunning tile styles (colorized, 3-D, and so on). And if you hold the mouse down on a folder tile, a pop-up menu shows everything inside. In other words, you get features 1, 2, 4, 6 through 13, and 15. It's loaded.

Launcher Features

1. Accelerated for Power Mac
2. All icons can show their names
3. Can launch program groups with one click
4. Can launch QuickKeys macros
5. Collapsible launcher windows
6. Freedom of icon placement on palette
7. Launcher to foreground when cursor in screen corner
8. Lets you colorize individual tiles
9. Lets you open multiple palettes at once
10. Pop-up menu on each tile (to see documents and so on)
11. Renameable palette icons
12. Space-saving skinny-layout option
13. Special tile-click for quitting programs
14. Type name to select icon
15. Visual cues show which programs are open

By this time, my two quibbles are perfectly predictable. I wish PowerBar didn't require a separate palette for open programs, and I wish it could display all tile names all the time (instead of just in the jumbo-icon view). Still, definitely send in your \$25 for this impressive piece of work. You'll have to: otherwise, the program expires after 30 days.

PowerLaunch II 2.0.1

Featurewise (3, 4, 6, 7, and 10), this odd-ball program has a lot going for it. It offers Launcher-like pages. And clicking on a single tile launches a flotilla of associated programs. Some of PowerLaunch's quirky featurettes are useful, too, such as the ability to schedule self-launch times for certain programs. But there's more to a great boat than a big engine, and this one needs some bodywork. You can't see your icons' names until you point at them (*sigh*), and you can't change tile sizes or colorize tiles. And, incredibly, you can't create document- or folder-launching tiles—only programs. Looks do count, after all.

VersaTile Pro 1.6.2

Boy, if you don't like *this* launcher's looks, it's your own darned fault. It actually has a layout *editor*, so you control the palettes' size, arrangement, color, and so on.

Rick Christianson's cleverly named \$20 shareware launcher even lets you associate a custom palette with a specific program, displaying it automatically when the program opens. The pop-up menu of each folder tile gives you quick access to everything inside. You can perform ten Finder functions (Make Alias, Print, Get Info, and so forth) directly from the palette. A fast, clean, and somehow intelligent-seeming program—with features 1 through 3, 6, 7, 9, 10 through 13, and 15 in the bargain.

DragStrip 2.0.1

Since the shareware world offers such an embarrassment of riches in the launcher department, offering a commercial utility takes either a lot of nerve or a really great product. Natural Intelligence has both (617/876-7680; \$59.95).

DragStrip is PowerPC accelerated, great looking, and AppleScript savvy. Its surprisingly lean design doesn't incorporate every feature in the world—you wish it could quit programs, too—but it's fairly robustly packed with 1 through 3, 5 through 12, 14, and 15. You can colorize almost every aspect of every tile (except the text of your icon names), and DragStrip uses a different color to indicate open programs. (Hurrah!) Specialized tiles do things like change speaker volume or monitor settings, pop up a calendar, or, interestingly, route a drag-and-dropped

file to a predefined destination folder. This is the most expensive launcher on the market, but you get what you pay for.

Square One 3.0

If you see some big waves coming, it's probably the wake of Square One, the beefy king of power launchers (Binary Software, 310/449-1481; \$44.95). Newly revved to version 3.0, this program calls out to the techies among us: its tiles can open not just files, folders, and programs, but macros made by AppleScript, QuickKeys, and even KeyQuencer (shareware). Internet trekkers will love being able to list and launch favorite URLs (Internet locales) right from the palette (requires Internet Config, freeware). Version 3.0 lets you quit or relaunch the Finder for the sake of RAM, too. In short, Square One offers 13 out of the 15 features in the table (it lacks only 5 and 11).

Square One's most unusual palette element is an optional side panel. If you click on a folder tile, this panel lists the files within; click on a program tile, and the panel shows its most recently opened documents. Another Square One exclusive: when creating your palette, the program offers to show you *lists* of your launchables (programs, QuickKeys, sounds, and so on)—instead of making you root around your hard drive looking for stuff to include.

These technical smarts demand 500K of RAM (more than three times The Tilery's appetite), and you must install a system extension to get all the features. Still, Square One's array of high-end features shows just how far we've come since the days when the Launcher represented a crutch for the technically challenged.

The Upshot

No E-mails asking where to get the shareware programs listed here, please: you can download them from America Online (they're in the Macworld Software library in the Mentioned in Macworld folder); they're also available from our Web site (<http://www.macworld.com>).

Having to choose a favorite in this classy cornucopia is like choosing whether you want your lottery winnings in \$10 or \$20 bills; it's all gravy. Take The Tilery for sweet simplicity, or Square One if you traffic in techier topics; PowerBar, DragThing, or Versatile are terrific in between. For a great screen-clutter-to-features ratio, I'll take DragStrip. That's right: there's a new launcher at my pad. **m**

Contributing editor DAVID POGUE is something of a launcher himself, having shot into the world *Macs for Dummies*, *Macworld Mac FAQs*, and (with Joseph Schorr) *Macworld Mac and Power Mac Secrets*, third edition (IDG Books Worldwide).

Everybody's talking...

Now With
World Wide
Web Browser!

"Nobody offers an easier-to-use system..."

- The New York Time, November 15, 1994

Copyright © 1994 by The New York Times Company. Reprinted by permission

"America Online: Best Consumer Online Service."

Information Industry Association/Online Access Magazine Hot Shots Award

Featuring
Macworld
Online!

"America Online remains the only one of the Big Three services that covers nearly everything in a single price."

- Walter Mossberg, The Wall Street Journal, January 12, 1995

Reprinted from THE WALL STREET JOURNAL © 1995 Dow Jones and Company Inc., All Rights Reserved



It's Easy.

It's Fun.

And It's Free
For 10 Hours!

Call

1-800-249-9300

(Details On Back)

I'd Like To Get My Hands On
A FREE Copy Of America Online®!

Return the card for your no risk, no obligation free start-up kit, free software and trial membership, or for faster service, call 1-800-249-9300. America Online is Windows® 95 compatible.

NAME

ADDRESS

APT #

CITY

STATE

ZIP

()
HOME PHONE

Windows®: ☐ 3.5 disk

☐ CD-ROM

Macintosh®: ☐ 3.5 disk

☐ CD-ROM

DOS: ☐ 3.5 disk

☐ 5.25 disk

☐ Low Density

☐ High Density

*To use America Online for Windows, you must have a 386 PC or higher, 4MB of RAM, a VGA monitor, a mouse, a modem, and a working copy of Windows 3.1/Windows® 95. Some features for America Online's Macintosh may differ. America Online's Web Browser is not available in a DOS format. Use of America Online requires a major credit card or checking account. Limit one free trial per individual. Must be 18 years of age or older. America Online is a registered service mark of America Online, Inc. Other names are service marks or trademarks of their respective owners. Windows® 95 is a registered trademark of the Microsoft Corporation.

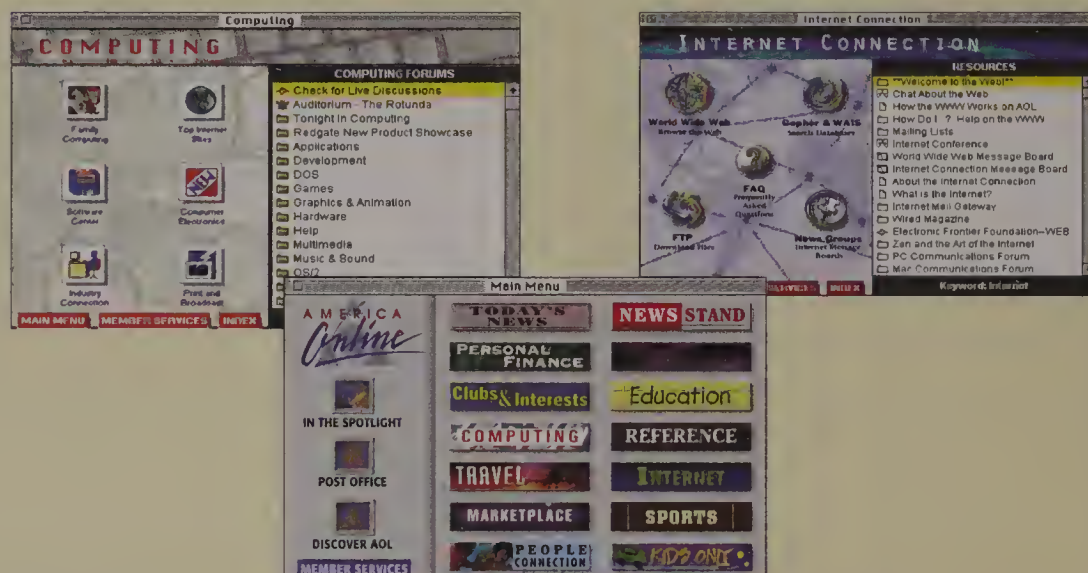
20239

America Online® - The #1 Choice

Over 3.5 million people have selected America Online for access to the world of online news and information, finance, entertainment, e-mail, free software, shopping and more. And, with the simple point and click, you can also explore the World Wide Web and the vast resources of the Internet. We make it so easy and fun - and now it's yours FREE! Just return the card or call 1-800-249-9300 today! We'll send you a free start-up kit, free software and a trial membership, good for 10 hours of America Online.

"AOL has managed to tap the vast content of the Net and harness it under its user-friendly interface."

- Reprinted with permission of The Dallas Morning News



FEATURING...



Macworld Online!

America Online features instant access to current and past issues of Macworld, including:

- Live weekly events with Macworld editors, authors and special guests
- A library of shareware and demos of the latest Mac software and upgrades
- Macworld's authoritative product ratings and comparisons

PLUS, America Online Gives You Instant Access To:

The Latest U.S. And World News When You Want It

Unlimited E-mail Even Across The Internet

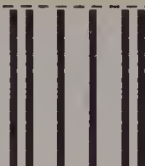
Up To Date Stock Quotes At Your Fingertips

Online Computing Support From Industry Experts

A Multitude Of Free Files, Software And More



**RETURN
THE CARD OR CALL:
1-800-249-9300
For Your FREE
10-Hour Trial
Today!**



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO 8567 VIENNA VA
POSTAGE WILL BE PAID BY ADDRESSEE

AMERICA®
Online

8619 Westwood Center Drive
Vienna, VA 22182-2220



Need a Hand?

Tap into the expertise of user groups

T IRED OF HEARING YOUR NON-Mac friends talk about the wonders of Windows 95? Sick of being on hold for technical support? Looking for a computer salesperson who actually knows something about the Mac? If so, it's time for you to hook up with your local Macintosh user group (MUG).

A user group's purpose in life is to give away help, advice, and information. My local group, the Los Angeles Macintosh Group (LAMG), states this mission: "We are Macintosh computer users who have joined together to help one another use the Macintosh as productively and pleasurably as possible." Most user groups are nonprofit organizations, run by volunteers, and mostly supported by tax-deductible donations. There are also user groups within corporations, government agencies, and educational institutions; and ones that focus on a particular software program, such as the national ClarisWorks User Group. All told, there are more than 2200 Mac groups in the United States and Canada. Chances are, there's one near you.

What Do You Get?

User groups provide a menu of services. Chief among these are meetings where the members help each other with thorny hardware and software problems, see presentations on new products by vendors, and socialize with their fellow Mac aficionados. MUGs usually have a large monthly meeting with one or more vendor demonstrations, and several smaller monthly meetings of special interest groups (SIGs). SIGs focus on specific topics; for example, there might be a SIG devoted to desktop video, or one for users who develop databases in Claris FileMaker Pro. SIG meetings are usually the best place for users to get detailed questions answered, as they're more informal than the main meetings, and they're packed with other members who are experts in the SIG's topic. Virtually all MUG meetings are open to the public, although the groups would, of course, prefer that you become a member. At the main meetings, the presenters usually

donate a few copies of their product, which the group then raffles off, with the proceeds benefiting the group. Often these prizes are quite valuable; at recent meetings, LAMG raffled a Mac clone from Power Computing and more than 50 copies of various Claris products.

Most groups also have a monthly newsletter, allow access to a library of shareware, and provide low-cost classes on a wide variety of topics. Newsletters contain club news, product reviews, and advice; they range in size from a few xeroxed pages to BMUG's (a Macintosh user group in Berkeley, California) biannual 400-page book. Some groups, such as the Arizona Macintosh Users Group, sell their shareware libraries on CD-ROM, and market their products via mail order and the Internet. MUG members

alternatives for people who can't get to the Macworld Expos in San Francisco or Boston. Less expensive, too.

Such a Deal

Membership dues are fairly inexpensive, ranging from \$35 a year for the San Diego group to \$49 a year for the Boston Computer Society. Your dues usually get you a newsletter and access to the group's meetings and BBS. Classes and products (if any) are usually extra.

Two MUGs are known for their worldwide presence: BMUG, and BCS•Mac, the Boston Computer Society's Mac division. BMUG claims more than 12,000 members in over 50 countries; BCS•Mac boasts 9000 members. Should you join a large national group? You're usually better off with the local group, especially if you want technical support. Local doesn't always mean small: LAMG has more than 5000 members, and Chicago's The Rest Of Us tops 2000. Most groups, however, have about 300 members, so you're not likely to be lost in the crowd.

Finding a MUG

The easiest way to find a U.S. user group is to call Apple's toll-free number, 800/538-9696, ext. 500. You will be directed to the user group closest to you, based on your zip code. Users in other countries should call their local Apple office for referrals. If

you have Internet access, you can find groups via the World Wide Web. Apple's Web page is at <http://www.apple.com/documents/usergroups.html>; another page, which is at <http://www.ugconnection.org/>, is maintained by the User Group Connection, an independent spinoff from Apple that promotes user groups for the Mac, Newton, PC, and Apple II. Another good place with MUG listings is the Yahoo index <http://www.yahoo.com>, in its Computers and Internet section.

—TOM NEGRINO

continues



have access to a bulletin board system (BBS) run by the group and can download software and post questions and comments. These BBSes can be small, with just a few phone lines and small chat areas, or large, with gigabytes of downloadable software, Internet access, and dozens of discussion forums handling hundreds of messages per day.

Many user groups also hold yearly regional trade shows. NYMUG, the New York City group, holds its MacFair event every March, and LAMG puts on MacFair LA in May. These events are great

PowerCADD™

Power Macintosh version of PowerDraw

300% faster than ever

Accelerated for
Power Macintosh

File Size

PowerCADD 2.0

PowerDraw 6.0

PowerDraw 5.0

(SCREEN REDRAW TIMES - SECONDS)*

1.5 MB	2.27	8.5	28.85
6.4 MB	5.49	18.12	38.25
1.0 MB	1.68	3.87	7.87

*Test conducted on a Power Macintosh 8100/100AV for PowerCADD 2.0 and a Macintosh Quadra 630 for PowerDraw versions.

M A C W O R L D
MW ★★★★★

Macworld October 1995

"...PowerCADD's greatest benefit is speed..."

"PowerCADD does the best job of harnessing the Power Mac's capabilities I've seen."



MacUser October 1995

"...PowerCADD's programmability and extensibility may make PowerCADD a better choice than high-end CAD programs."

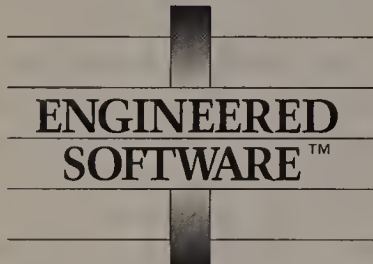
score card
MacWEEK
◆◆◆◆

MacWEEK July 10, 1995

"...a 1.4 MB (PowerCADD) file on the Power Mac updated more than two times faster on the Power Macintosh (redraw speed of five seconds)."

InfoWorld July 24, 1995

"PowerCADD 2.0 boasts faster redraw times, faster editing and processing speeds, improved layer controls, enhanced editing commands, and a redesigned interface."



Call 910-299-4843

Fax 910-852-2067

In Canada 204-453-8111

Circle 12 on reader service card

Letters

Returning Apples On July 3, 1995, I ordered a factory-refurbished Performa 6115CD and a factory-refurbished Multiple Scan 15 monitor from Creative Computers' MacMall. When the computer booted up, I saw bizarre-looking color bleeds all over the screen. I immediately called MacMall and spoke to a customer-service representative, who was courteous and helpful. He arranged to exchange the monitor for another one.

Then I tried to install some software from a floppy that was apparently unreadable. I inserted a blank disk and attempted to initialize it, but the computer spit it out too and said it was damaged. Both disks worked fine in my other computer [a Performa 6115]. After several calls to MacMall and a lot of time on hold, a representative told me to ship the CPU back and the company would repair it.

I told MacMall I preferred to exchange both the CPU and the monitor for a new Performa 6115CD system and I would gladly pay the difference. MacMall explained that I could not return the factory-refurbished CPU even though it arrived broken. MacMall repeatedly said there was nothing they could do, short of referring me to Apple, so I immediately called my credit card company, who issued an instant credit to my account.

Matt Talbott
Napa, California

Three weeks later we heard from Matt again:

My credit card company advised me that since MacMall had failed to respond within 45 days, the credit to my account was permanent. I still have the merchandise. Strangely, MacMall refuses to accept the defective merchandise.

Among the mail-order houses I contacted, the repair policies vary only slightly. The mail-order companies all fall back on Apple for repairs or replacements of Apple hardware.

A couple of illustrations: Macworld received two similar letters of complaint about returning defective equipment. William Salem ordered a new monitor from a mail-order house, but when it arrived it was so out of focus that text was illegible and he could not discern the different icons. After much ado, Apple replaced the monitor with a refurbished three-year-old model. It wasn't even refurbished cosmetically: it arrived with spray paint on the back of the monitor, the rubber feet were dirty and torn, and the swivel base was missing. Apple insisted that the replacement conformed to its limited warranty. The other customer, Randall Thompson, couldn't get his \$6500 Apple Color LaserWriter 12/600 PS to work. The mail-order house provided a new photo-conductor cartridge, but as problems continued, the company recommended that Thompson talk direct-

SERVICE HERO

Farallon Computing treated Walter McWhorter with respect, honesty, and efficiency when his company upgraded its Mac network to 10BaseT Ethernet using Farallon cards and a Farallon hub. For a few weeks the hub operated smoothly. After an employee switched some circuit breakers on and off for reasons not related to the network, the hub no longer worked. When technical-support calls did not solve the problem, Farallon suggested returning the hub for evaluation. The next day, McWhorter received a new hub even though his problem was not necessarily covered by the warranty. McWhorter sends kudos to Farallon for going above and beyond the call of duty.

ly to Apple. After six weeks and three trips to an Apple service rep, the printer still doesn't work and Apple has not replaced it yet.

Buying refurbished equipment can be a good idea, but be aware that the company you buy your equipment from will not take care of all your service needs. We recommend you know the specifics of the return and support policies of not only the mail-order house, but also the manufacturer. (Note: Some factory-refurbished equipment is not returnable, and unless it's specifically advertised with a money-back guarantee, no such equipment can be returned for a refund. Defective equipment will be repaired or replaced in accordance with its warranty.) Follow the same rules as for any purchase: order with a credit card and get repair, replacement, and warranty policies and money-back requirements in writing before any purchase.—GREGORY S. SMITH

TOM NEGRINO is a Macworld contributing editor and a vice president of LAMG. He is coauthor (with fellow contributing editor Charles Seiter) of Macworld Essential Web Secrets (IDG Books Worldwide, 1995).

GREGORY S. SMITH is a San Francisco-based computer consultant, author, and frequent shopper at computer stores throughout the country.

Next month: How to maximize your MUG's services

Not getting the treatment you deserve? Or have you received heroic service? Write to the Conspicuous Consumer department at Macworld, 501 Second St., San Francisco, CA 94107; send us a fax at 415/442-0766; or E-mail us at macworld@macworld.com. Look for us on America Online (keyword Macworld) and on the World Wide Web (<http://www.macworld.com>).

**Storing less than
400MB on a higher
capacity data cartridge
is like buying this
entire page and only
using this much of it.**



Sony QIC-WIDE Cartridge



QIC-WIDE Drive



Travan Technology
Drive

Since none of us are in the business of wasting space, money, time, or anything else, consider the alternative: if you have less than 400MB to store, Sony QIC-WIDE will satisfy your storage needs at an economical unit cost while providing total compatibility with Travan® technology drives. And you'll get the same reliability, flexibility, and performance that comes with every Sony recording media product. Sony QIC-WIDE. The more intelligent choice for your daily backups. For more information call 1-800-955-SONY ext. QW. Or to access our World Wide Web site, punch in <http://www.sony.com>.

SONY



COMNET®
WASHINGTON, D.C.

January 29 to February 1, 1996
Washington, D.C. Convention Center
Washington, D.C. Renaissance Hotel

Keep Your Enterprise Afloat With...

- How-to tutorials through advanced engineering sessions for every interest and level of expertise
- More Hands-on and interactive classes, including multimedia and switching technologies
- Hundreds of new products to see *and* try
- Advice on riding the wave of new Information Superhighway technologies
- Industry visionaries and top educators sharing insights and answers with you

For a complete brochure and to find out how you can register now and save!

Call 800-545-EXPO

Get more information on the WWW at:
<http://www.mha.com/comnet/>

Hold On, Help Is On The Way!

ComNet '96 Will Help Keep Your Enterprise Afloat!

If you feel swamped by the unrelenting surge of networking and communications technologies, ComNet '96 is about to turn the technology tide in your favor.

Whether you design, build, or manage the enterprise network, this year's ComNet gives you more of what you need to make informed technology decisions in virtually every area of corporate networking and communications.

With the industry's finest minds giving insight *and* answers to your most pressing network-related problems, ComNet '96 is the most comprehensive, ambitious, and enlightening event of its kind. It's your once-a-year opportunity to learn how to navigate complex technology currents in order to reach your IT destination.

It's ComNet '96. And it's a life-saver.

Hear Visionary Keynote Speakers

- Nicholas Negroponte, *Founder and Director of MIT Media Laboratory*
- James Barksdale, *CEO of Netscape*
- Edward Bennett, *CEO of Prodigy Services*
- Eric Schmidt, *Sun Microsystems' Chief Technology Officer*
- Plus, compelling Plenaries, Spotlight Sessions and Industry Forums!

A Sea of Exhibits and Solutions

- Over 450 exhibiting companies
- Debuts of hundreds of leading-edge products plus *Computerworld's* New Product Achievement Award
- Exhilarating introductions to multimedia applications, network security, ATM switching, network management, the Internet. And much more.

Save Me! I want more information on ComNet '96
I am interested in: ☐ Attending ☐ Exhibiting

Name _____

Company _____

Address _____

City/State/Zip _____

Phone _____ Fax _____

eMail _____

Mail to: MHA Event Management, 1400 Providence Highway,
Norwood, MA 02062 Or Fax to: 617-440-0300

MW

Flagship sponsor:
NetworkWorld

COMMUNICATIONS WEEK

SPONSORED BY

COMPUTERWORLD

**NETWORK
COMPUTING**

**FEDERAL
COMPUTER WEEK**

The Greater
Washington  **Board
of Trade**



Editors' Choice

THE BEST PRODUCTS FEATURED IN MACWORLD

Edited by Patricia Carberry-Harris

Macworld Editors' Choice is a complete listing of the hardware and software products selected as the best of their type in *Macworld's* comparative articles. A ♦ next to a product indicates that we chose more than one product in that category. A ⚡ next to a product listing indicates that a native Power Mac version is available.

Hardware

DIGITAL RECORDING AND EDITING

HARDWARE/SOFTWARE PACKAGES, Dec 95

Low-End: Audiomedia II; Digidesign, 415/688-0600; \$1295.

High-End: Pro Tools III Core System; Digidesign, 415/688-0600; \$6995 (this price does not include the required interface).

MONITORS

17-INCH MONITORS, Oct 95

17B; Philips Consumer Electronics, 800/835-3506; \$899.

SMALL COLOR MONITORS, Jan 94

14-inch display: ♦ Sony CPD 1430; Sony Corp. of America, 800/222-7669; \$779.95.

♦ Nanao FlexScan F340i•W; Nanao USA, 800/800-5202; \$799.

15-inch display: NEC MultiSync 4FGc; NEC Technologies, 708/860-9500; company's estimated price \$755.

TWO-PAGE COLOR MONITORS, Nov 94

PressView 21 Display System; SuperMac Technology, 408/541-6100; \$3999.

NETWORK HARDWARE

REMOTE-ACCESS SERVERS, Oct 94

Mixed networks: NetConnect Remote Access Server; Asanté Technologies, 408/435-8401; \$3899 for eight ports.

AppleTalk networks: ARA Multiport Server; Apple Computer, 408/996-1010; four ports \$1799, eight ports \$3298.

PRESENTATION HARDWARE

PORTABLE PRESENTERS, Jan 95

Z115; nView, 804/873-1354; \$5495.

PRINTERS

COLOR BUSINESS PRINTERS, Sep 95

Tektronix Phaser 340; Tektronix, 503/682-3411; \$5590.

DYE-SUBLIMATION PRINTERS FOR PUBLISHING, Jan 96

Low-End: Fargo Pictura 310; Fargo Electronics, 612/941-9470; \$4995, with CPSI \$5794.

High-End: 3M Rainbow 2720; 3M Printing and Publishing Systems, 612/737-6501; \$18,500.

PERSONAL PRINTERS, Sep 94

Ink-Jet: DeskWriter 520; Hewlett-Packard, 800/752-0900; \$365.

Laser—\$1000 to \$1600: microLaser Pro 600; Texas Instruments, 214/995-6611; \$1599.

WORKGROUP PRINTERS, Jun 95

Tabloid-size printers: LaserJet 4MV; Hewlett-Packard, 208/323-2551; \$3549.

Legal-size printers: ♦ Optra Lx; Lexmark, 606/232-2000; \$3298.

♦ LaserWriter 16/600 PS; Apple Computer, 408/996-1010; company's estimated price \$2299.

SCANNERS/IMAGE CAPTURE

PROFESSIONAL REAL-TIME FILMLESS CAMERAS, Sep 95

Fujix DS-515/Nikon E2; Fujii, 914/789-8100;

Nikon, 516/547-4200; \$12,780; with optional lens and PC Card \$14,140.

HIGH-BIT FLATBED COLOR SCANNERS, Mar 95

♦ Arcus II; Agfa, 508/658-5600; \$3495.

♦ PowerLook; Umax, 510/651-8883; \$3495.

LOW-COST COLOR SCANNERS, Nov 93

\$1300 to \$1600: Hewlett-Packard ScanJet IIc; Hewlett-Packard, 800/752-0900; \$1599.

Under \$1300: Mirror 800 Plus Color Scanner; Mirror Technologies, 612/633-4550; \$1299.

OCR, Nov 93

OmniPage Professional; Caere, 408/395-7000; \$995. ⚡

SYSTEMS/STORAGE

1.3GB OPTICAL STORAGE, Dec 94

Best low-cost solution: 1.3Gig MO; Club Mac, 714/768-8130; \$2099.

Best overall performance: Genesis 1300; Microtech, 203/468-6223; \$2899.

DOS/WINDOWS CARDS, Sep 95

Most 040 Macs: DOS on Mac; Reply, 408/942-4804; 50MHz model \$590; 66MHz model \$690.

Most Power Macs: OrangePC Model 220; Orange Micro, 714/779-2772; \$1217 direct price.

Occasional Windows Access: Timbuktu; Farallon Computing, 510/814-5100; \$199 per user.

HIGH-PERFORMANCE DRIVE SYSTEMS, Jul 95

Accelerator card: SiliconExpress IV; Atto Technology, 716/691-1999; \$995.

Drive mechanism: IBM UltraStar series; IBM (this drive mechanism is available from several resellers); prices vary by reseller.

QUAD-SPEED CD-ROM DRIVES, Jun 95

APS T3501; APS Technologies, 816/483-6100; \$299.95.

RAID STORAGE SYSTEMS, Apr 95

RAID 3 or 5: MR/5 RAID; MegaDrive Systems, 310/247-0006; \$18,840.

RAID 0: ♦ Joule RAID; La Cie, 503/520-9000; \$1999. ♦ Diskovery 8200W; Optima Technology, 714/476-0515; \$7790.

♦ SledgeHammer 2000FMF; FWB, 415/474-8055; \$2359.

SYSTEM UPGRADES, Feb 95

Upgrade for Macintosh Quadra 650, 800, or 950: Power Macintosh Upgrade Card; Apple Computer, 408/996-1010; \$699.

Upgrade for other 680X0 Macs: Replace with Power Macintosh 6100/60 with CPU booster and cache card. Power Macintosh 6100/60; Apple Computer, 408/996-1010; \$1819 (base system with 8MB of RAM). PowerClip (CPU booster); Newer Technology, 316/685-4904; \$245. 256K cache card; various companies; roughly \$200.

VIDEO/DISPLAY

24-BIT VIDEO CARDS, Apr 94

Inexpensive acceleration: PrecisionColorPro 24XP; Radius, 408/434-1010; \$599.

Full-featured acceleration: Thunder II GX•1360; SuperMac Technology, 408/541-6100; \$4499.

DIGITAL-VIDEO BOARDS, Aug 95

SpigotPower AV; Radius, 408/434-1010; \$999. *continues*

MACWORLD

Editors' Choice

HIGH-END VIDEO EDITING, Jun 94

Presentation video: ♦ MoviePak2 Pro Suite; RasterOps, 801/785-5750; \$4199. ♦ VideoVision Studio; Radius, 408/434-1010; \$4499.

Corporate video (offline): Media Composer 400s; Avid Technology, 508/640-6789; \$14,995.

Corporate video (online): VideoCube; ImMix, 916/272-9800; \$40,500.

PHOTOSHOP ACCELERATORS, Apr 94

PhotoBooster; Radius, 408/434-1010; \$999.

Software

ACCOUNTING/FINANCE

GROWING A SMALL BUSINESS, Nov 93

Small-business system: M.Y.O.B.; Best Ware, 201/586-2200; \$199.

Home office/personal finance: MacMoney; Survivor Software, 310/410-9527; \$119.95.

BUSINESS TOOLS

PORTABLE-DOCUMENT SOFTWARE, Apr 95

Document Distribution: Common Ground 1.1; No Hands Software, 415/802-5800; \$189.95.

STATISTICS, Oct 93

Exploratory data analysis: DataDesk 4.1; Data Description, 607/257-1000; \$595. ◀

Comprehensive package: SYSTAT 5.2.1; SYSTAT, 312/329-3500; \$895.

COMMUNICATIONS/NETWORKS

COMMUNICATIONS SOFTWARE, Aug 94

Basic connectivity: ZTerm; David P. Alverson (no phone number available); \$30.

Terminal emulation: Crosstalk for Macintosh; Digital Communications Associates, 404/442-4000; \$195.

Internet exploration: VersaTerm; Synergy Software, 215/779-0522; \$125.

DOS WINDOWS EMULATION, Oct 94

Timbuktu Pro 1.0.3 for Macintosh, Timbuktu 1.1 for Windows; Farallon Computing, 510/814-5000; \$199 each. ◀

INTERNET BROWSERS, Oct 95

Netscape Navigator; Netscape Communications, 415/528-2555; \$39. ◀

PROTOCOL ANALYZERS, Jul 94

EtherPeek; AG Group, 510/937-7900; \$795.

TERMINAL EMULATOR, Oct 93

VersaTerm; Synergy Software, 215/779-0522; \$149.

DIGITAL RECORDING AND EDITING

SOFTWARE-ONLY PRODUCT, Dec 95

Deck II; OSC, 415/252-0460; \$399.

GRAPHICS

3-D MODELING, Dec 94

Stand-alone modeler: formZ; autodessys, 614/488-9777; \$1495. ◀

Integrated-modeling package: Strata StudioPro; Strata, 801/628-5218; \$1495. ◀

Entry-level modeler: Infini-D; Specular International, 413/253-3100; \$695. ◀

CLIP ART'S GREATEST HITS, Jan 94

Overall collection: ♦ ClickArt Studio Series; T/Maker Company, 415/962-0195; \$99.95 per volume.

♦ Electronic Clipper subscription service; Dynamic Graphics, 800/255-8800; \$67.50 per month.

♦ Images with Impact series; 3G Graphics, 800/456-0234; \$99.95 to \$129.95 per volume, CD-ROM \$499.

♦ Metro ImageBase Electronic Clip Art; Metro ImageBase, 800/525-1552; \$74.95 per volume, CD-ROM \$149.95.

♦ Typographers' Ornaments; Underground Grammarian, 609/589-6477; \$25 per volume; ten TIFF albums \$200; EPS volumes \$50 each.

FONT BUYERS' GUIDE, Mar 94

Text-face collection: Type On Call CD-ROM; Adobe Systems, 415/961-4400; \$99 (this price includes the ability to unlock two families from preselected packages); an additional \$25 enables you to unlock individual faces, or \$69 to \$179 for unlocking families.

Display/decorative-face collection: Fontek; Letra-set, 201/845-6100; \$39.95 per face.

Bargain collection: Monotype ValuePack; Monotype, 312/855-1440; \$89 for 57 fonts.

IMAGE DATABASES, Oct 93

♦ Aldus Fetch 1.0; Adobe Systems, 206/628-5739; \$295.

♦ Multi-Ad Search 2.0; Multi-Ad Services, 309/692-1530; \$249.

IMAGE EDITORS, Feb 95

Adobe Photoshop 3.0; Adobe Systems, 415/961-4400; \$895. ◀

INTEGRATED SOFTWARE

INTEGRATED SOFTWARE, Nov 95

ClarisWorks 4.0; Claris, 408/727-8227; \$129. ◀

ONLINE SERVICES

ONLINE SERVICES, Aug 94

E-mail: America Online; America Online, 703/893-6288; basic monthly fee \$9.95.

Reference: CompuServe; CompuServe Information Service, 614/457-0802; basic monthly fee \$8.95.

ORGANIZATION/PRODUCTIVITY

GRAPHING SOFTWARE, Aug 94

DeltaGraph Pro 3 3.0.4; DeltaPoint, 408/648-4000; \$195. ◀

SALES-AUTOMATION SOFTWARE, Oct 93

♦ Contact Ease; WestWare, 619/274-5053; one user \$395, five users \$1495.

♦ CBS; Colleague Business Software, 512/345-9964; \$495.

TEXT-RETRIEVAL SOFTWARE, Dec 93

Small system: On Location; On Technology, 617/374-1400; \$129.

Multiuser system: Personal Librarian; Personal Library Software, 301/990-1155; \$995.

PRESENTATION TOOLS

PRESENTATION SOFTWARE, Jul 94

Persuasion 3.0; Adobe Systems, 206/622-5500; \$495. ◀

UTILITIES

BRAVE NEW DOCUMENTS, Jan 94

Application-independent document distribution: Common Ground; Common Ground Software, 415/802-5820; \$189.95.

Book-length documents: FrameReader; Frame Technology, 800/843-7263; \$84.95.

PRINTING, Sep 93

PC-printer cable packages: PowerPrint; GDT Softworks, 604/291-9121; \$149.

VIRUS KILLERS, Jul 94

Commercial software: Virex; Datawatch, 919/549-0711; \$99.95. ◀

Free software: Disinfectant; free from various online services.

VIRTUAL MEMORY SOFTWARE

VIRTUAL MEMORY, Jun 94

Virtual memory software: Virtual 3.0; Connectix, 415/571-5100; \$99.

Memory-boosting software: RAM Doubler 1.0.1; Connectix, 415/571-5100; \$99. ◀

WORD PROCESSORS

HIGH-END WORD PROCESSOR (for fast 68040 Macs and Power Macs), Mar 95

Microsoft Word 6.0; Microsoft, 206/882-8080; \$325. ◀

LOW-COST WORD PROCESSOR, Mar 95

MacWrite Pro; Claris, 408/727-8227; \$99. ◀ **m**

Vendors: Please write to *Macworld Editors' Choice*, 501 Second St., San Francisco, CA 94107, or send a fax to 415/442-0766 to inform us of changes in your phone number or your product's list price.

The Hottest Scanner Now Has The Coolest Stuff.

**NEW
LOWER PRICE!**

**Includes FREE Transparent
Media Adapter**

Visit Microtek at
MacWorld Expo/SF
January 9-12
Booth #327

SAVE A BUNDLE ON 36-BIT SCANNING & GET A BUNDLE!

Now for around \$2,000 you can own Microtek's award-winning **36-bit ScanMaker® III**. It's one of the fastest and most advanced single-pass color flatbeds available. In fact, Publish magazine called the ScanMaker III "the flatbed to beat". This 600 x 1200 dpi scanner includes the **full-version of Adobe Photoshop**, **ScanWizard™**—Microtek's powerful, new scanner controller software, Microtek's **DCR color calibration system** and **Kodak's Color Management Software**. And now, Microtek includes the **Transparent Media Adapter** for scanning transparencies and negatives, and **OCR software** for scanning text. But we're not through yet! Purchase a Microtek ScanMaker III from **October 1, 1995 to December 31, 1995** and you also get your choice of one of the packages below. Just look for the coupon in your ScanMaker III box.

**When you purchase a ScanMaker III
for Macintosh, choose one of these:**

1. HSC Live Picture 2.0

(full version on CD-ROM)

...Or...

**2. HSC Live Picture Special Edition,
KPT Convolver, Kai's Power Tools**

(all on CD-ROM)

...Or...

**3. New! Fractal Design
Painter 4.0** paint and image-
editing software

**When you purchase a ScanMaker III
for Windows, choose one of these:**

1. NEW! Microtek PageWiz™

personal page scanner for PCs & Laptops

...Or...

2. New! Fractal Design Painter 4.0

paint and image-editing software

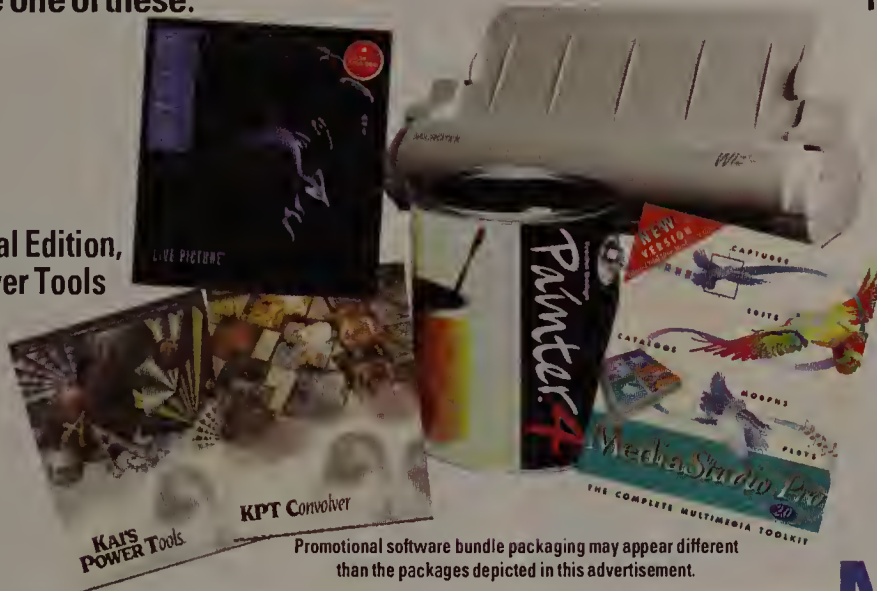
...Or...

3. NEW! U-Lead Media Studio Pro 2.0

the complete multimedia toolkit

plus **KPT Convolver** and

Kai's Power Tools (all on CD-ROM)



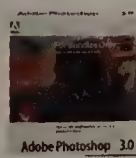
Promotional software bundle packaging may appear different
than the packages depicted in this advertisement.

TERMS & CONDITIONS: Purchasers of ScanMaker III for PC are limited to one bundle only from Windows versions of software listed. Purchasers of ScanMaker III for Macintosh are limited to one bundle only from Macintosh version of software listed. Windows and Macintosh versions of software are not interchangeable. To receive promotional software bundle, ScanMaker III must be purchased between October 1, 1995 and December 31, 1995, no exceptions. Software will only be fulfilled from fully completed coupons (found in the ScanMaker III carton) with attached original sales receipts of ScanMaker III purchase. If you purchased your ScanMaker III after October 1, 1995 and before December 31, 1995 but did not receive a coupon in the carton, call Microtek at 1-800-654-4160. Please note: Microtek PageWiz works with Windows-based computer systems only. This promotion is valid only for ScanMaker III sales in the continental United States. This is an end user promotion and is not valid for resellers.

MICROTEK

Better Images Through Innovation.

For more information or the location of your nearest Microtek reseller, call **1-800-654-4160** or fax us at **310-297-5050**.



The following are trademarks or registered trademarks of their respective companies: Microtek, ScanMaker, DCR, ScanWizard of Microtek Lab, Inc.; Windows of Microsoft Corporation; Macintosh of Apple Computer, Inc.; Adobe Photoshop of Adobe Systems, Inc.; KCMS and Kodak Color Management Software of Eastman Kodak Company; Live Picture of Live Picture Incorporated; KPT Convolver and Kai's Power Tools of HSC Software Corporation; Media Studio Pro of U-Lead Systems, Inc. Painter of Fractal Design Corporation. All other trademarks or registered trademarks are the property of their respective holders. Prices, specifications and software bundles are subject to change without notice.

Circle 105 on reader service card

No matter how fast can't outrun a power

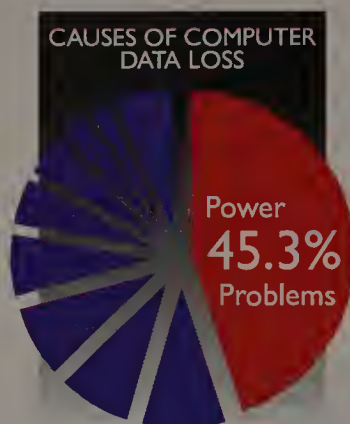
New Back-UPS: reliable power for your Mac

Just don't have the time for power problems on your Mac? Don't worry. They'll make time for you. It's not if a power problem will occur, but when. Due to household appliances, poor wiring, bad weather or even other office equipment, power problems are as inevitable as death and taxes. You can't run, but you can hide, behind APC protection.

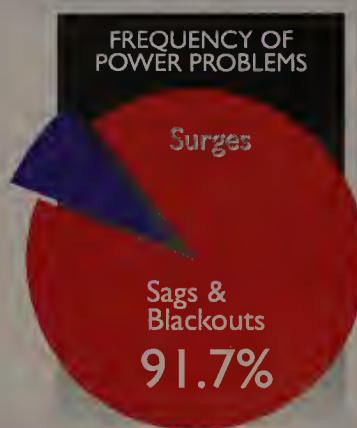
**IN THE NEXT THREE MONTHS,
MORE THAN 30,000,000 PCs WILL BE HIT
BY POWER PROBLEMS...**

A study in a recent *PCWeek* showed that the largest single cause of data loss is bad power, accounting for almost as much data loss as all other causes combined. Every Mac plugged into an outlet is vulnerable. In fact, you have better odds of winning the lottery than escaping power problems. One study found a typical computer is hit 100 times a month, causing keyboard lockups, drive damage, or worse.

Simply put, if power problems are the least of your troubles, you've got one chance to keep it that way. You insure your car and home with the best policy you can afford. It just doesn't make sense to leave your Mac (which is at far greater risk) vulnerable to loss or damage.



Source: Contingency Planning



Source: Bell Laboratories

Power problems are the leading cause of computer data loss, while the most frequent type of power problems are undervoltages and blackouts, which surge suppressors alone are powerless to protect against.

WHY A \$119 APC UPS COSTS LESS THAN A \$9.99 "SURGE PROTECTOR"...

Contrary to most people's belief, a Mac alone has more protection built into it than a low-end "surge suppressor," which is usually nothing more than a well-packaged extension cord. In other words, going without protection is as good as under-spending on one of the most important computer decisions you'll make.

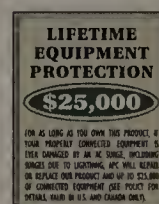
And since sags and blackouts represent more than 90% of power problems likely to hit your Mac, even quality, high-performance surge suppressors are literally powerless to protect your Mac from data loss.

That's why you need instantaneous battery backup power from an APC Uninterruptible Power Supply to prevent keyboard lockups, data loss, and crashes. With an APC UPS, you get six times the protection of a high-end surge protector for little more than twice the price. And \$119 is much less expensive than false peace of mind.

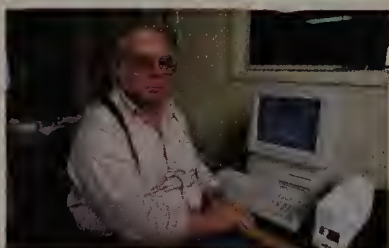
Add APC's PowerChute* and you also get the security of graceful, unattended safe shutdown. Whether your running System 7.5 on your PowerMac, Quadra, IICI or on any other Mac system, PowerChute will shutdown your system and your applications in the event of an extended power failure.

APC UPSs carry up to a

\$25,000 lifetime guarantee against surge damage to your properly



More than 3,000,000 satisfied customers count on APC reliability



Modern Press President Stephen Hopkins explains, "I protect my Mac Performa with a Back-UPS 400 and the unit works great. The Mac handles all bookkeeping, administrative and estimating functions for the company. It is a critical piece of my business. Unfortunately, we are located in an industrial park... a nice way of saying that our power fluctuates a great deal. After five years of reliable performance from my Back-UPS, power problems are no longer my concern. I can focus my energy on my business instead."



At Cellophane Square, Seattle's best known independent and alternative rock record store, Steve Marcus, Product Buyer, counts on APC to keep his Mac II SI and POS terminals running reliably. "The building where we started out was ancient and full of power problems. I lost lots of purchasing and product related information... until we invested in APC. I chose APC because they offer the most reliable product. I haven't been proven wrong yet. Problems continued in the building, but they were no longer a problem for us."



"We have over 30 APC units on our Macs," says Tim Girvin, principal of Tim Girvin Design, Seattle, WA. "Why do we protect every computer in the firm with an APC? As design consultants working on projects throughout the United States and Asia, 100% productivity is critical to project management. We cannot afford lost files due to power outages because of the complexity of many of the design programs we manage. Lost projects due to unprotected files is simply irresponsible. With APC in place, power problems are not even an issue, we are protected."

The
Power Protection
Handbook

Protect Your Mac. **FREE** 60-page Power Protection Handbook

What are the myths and musts of Mac protection? What are the 10 most common power protection mistakes? The top tips for adding reliability to your LAN? Get your FREE copy and find out!

- ☐ **YES!** I'm interested in trading up a competitive or older UPS to a Back-UPS. Please send Trade-UPS info
- ☐ **NO!** But I would like a FREE Handbook.

Name: _____ Title: _____

Company: _____

Street: _____

City: _____ State: _____ Zip: _____

Phone/fax: _____

Brands of UPS used? _____

servers/Macs to be protected? _____

Dept. D7



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 36 WEST KINGSTON, RI

POSTAGE WILL BE PAID BY ADDRESSEE



AMERICAN POWER CONVERSION

Dept. D7

132 Fairgrounds Road
P.O. Box 278
West Kingston, RI 02892-9920



your Mac is, it problem

starting at \$119

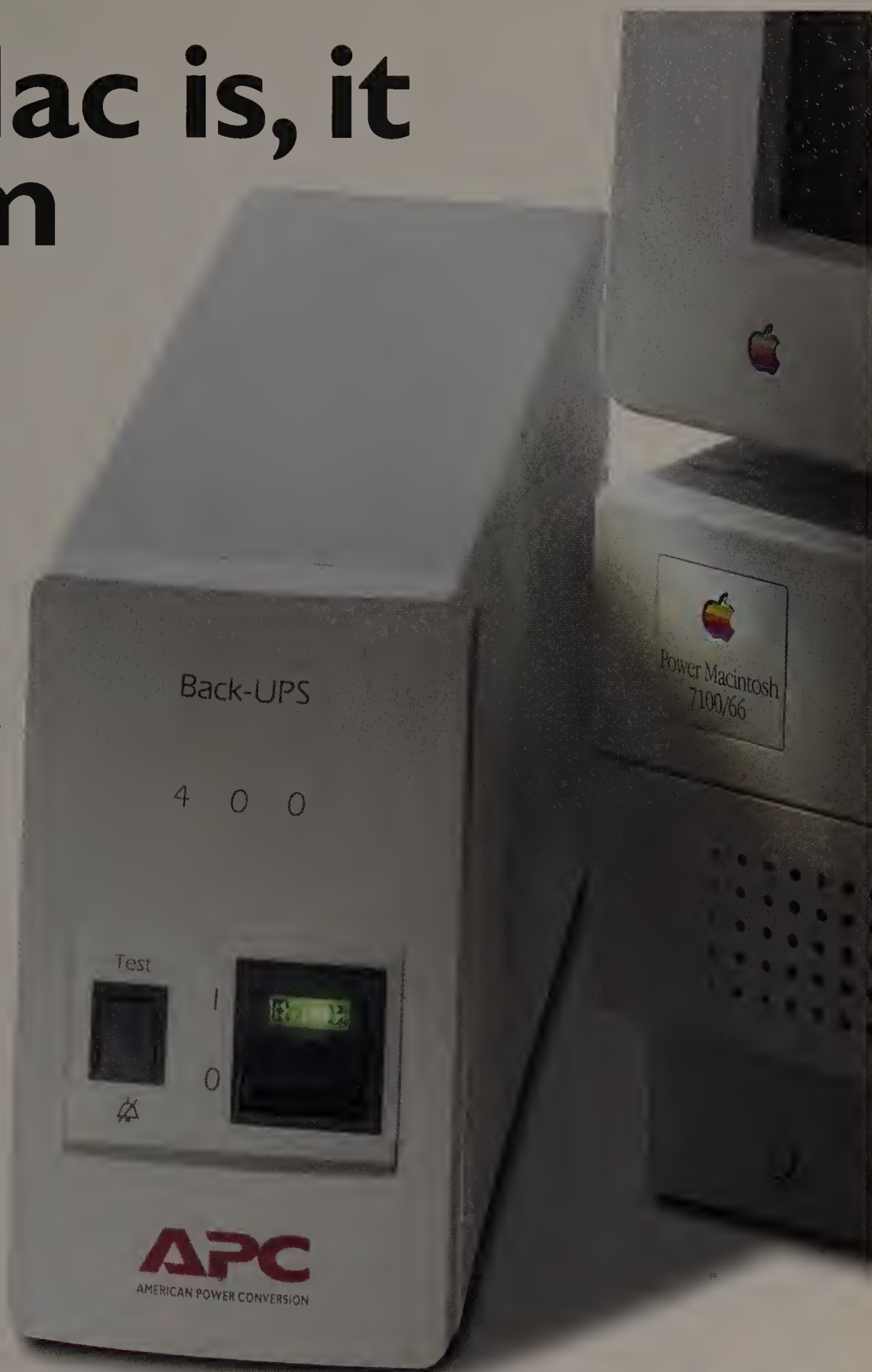
connected equipment, and can suit any application, from servers and PCs, to fax and satellite systems.

PROTECT YOURSELF OR KICK YOURSELF...

It's been said that there are two types of computer users: those who have lost data, and those who are about to. Prevent the single largest cause of computer problems and join a fast-growing third category: those who protect their PCs with the most reliable protection they can buy: APC UPSs. So ask for APC at your favorite reseller. Starting at \$119, an APC UPS is serious protection no Mac user should be without.

MacWEEK "Ultimately, it's more a question of when - and not if - you should buy a UPS... UPS power protection has never been cheaper or more convenient"

MacUser "If you have a server and don't have a UPS, you're playing with fire."



Back-UPS FEATURES

- ▶ Unmatched surge/lightning protection for maximum hardware safety
- ▶ Site diagnostics automatically spot missing ground and reversed polarity
- ▶ LAN signaling allows simple shutdown with interface kits (400 and above)
- ▶ User replaceable, hot swappable batteries insure uptime safe disposal
- ▶ \$25,000 lifetime Equipment Protection
- ▶ 10 minute runtime with specified applications. For longer runtimes choose next largest unit.

Model	Application	Sugg. List
200	Desktop systems	\$119
280	Desktop systems	\$139
400	MultiMedia	\$199
450	Quadra	\$254
600	PowerMacs	\$359
900	Longer runtime applications	\$529
1250	Multiple systems	\$689

ClubMac®
1-800-258-2622
OPEN 24 HOURS A DAY, 7 DAYS A WEEK



Visit APC's PowerPage™ on the Internet
<http://www.apcc.com>

APC products have won more awards for reliability than all other UPS vendors combined



APC®

AMERICAN POWER CONVERSION

Call 800-800-4APC

A complex, surrealist collage illustration. At the top, a large green classical column stands on a yellow, cracked, circular platform. To the left of the column is a yellow clock face with black numbers and hands. A red ladder leans against the platform. A yellow building with a grid of windows is on the right. Various figures are scattered throughout: a figure in a red suit on the yellow platform, a figure in a blue suit near the ladder, and a figure in a blue suit near the bottom. The background is a mix of green, yellow, and brown tones, with a large yellow 'MACRO' logo in the top right corner. The overall style is dreamlike and abstract.

Mail in or fax the coupon below to get the latest brochure and find out how you can build with the power of MACWORLD Expo.

Mail to: MHA Event Management, 1400 Providence Highway,
Norwood, MA 02062 Or Fax to: 617-440-0300

Star Ratings

HARDWARE AND SOFTWARE REVIEWS AT A GLANCE

Edited by Wendy Sharp

Macworld Star Ratings lets you compare Macintosh products by providing summaries of *Macworld's* authoritative product reviews from the past year. The number of stars indicates quality; our reviewers assign five stars to outstanding products and one star to poor ones. The  symbol indicates that a product is available in a native Power Mac version.

If a product has been upgraded since our last review, the most recent version number supplied by the vendor appears in parentheses after the reviewed version number. To read a full review of any product in the listing, please consult the issue listed at the end of each synopsis.

Vendors: Please write to *Macworld Star Ratings*, 501 Second St., San Francisco, CA 94107 to inform us of changes in the version number or list price of your product, or of changes to your phone number.

Software

BUSINESS TOOLS

- ★★ **Adobe Acrobat 2.0, Adobe Systems, 415/961-4400, \$195.** The font fidelity of this portable-document software is uneven, and the software demands too much in resources compared with other options. Mar 95
- ★★★ **Adobe Acrobat for Workgroups 2.0, Adobe Systems, 415/961-4400, \$1595.** As a collaboration tool, this software is inexpensive and offers well-done annotation tools. However, it's resource-intensive, and creating hypertext documents with it isn't easy. Mar 95
- ★★★★ **BizPlan Builder 5.0, Jian, 415/254-5600, \$129.** To create a comprehensive business plan, just fill in the blanks in this easy-to-use spreadsheet/word processor template. Jun 95
- ★★★★ **Business Plan Writer 6.0, Graphite Software, 301/984-1100, \$99.** This proposal-writing template can help entrepreneurs create a detailed business plan, but—unlike the competition—it won't help them format an attractive presentation. Jun 95
- ★★★★ **ClarisWorks 3.0, Claris Corp., 408/727-8227, \$129.** Inexpensive, easy to use, and powerful integrated software is the best package available. It's far better in terms of features, speed, integration, and use of system resources than its competition. Feb 95 
- ★★★ **Equate 1.0, Holosoft, 408/748-9648, \$99.** Newton spreadsheet allows you to import Microsoft Excel files, but you'd have to be very patient to set up stand-alone worksheets. Oct 95
- ★★★★ **Helix Express 3.03, Helix Technologies, 708/465-0242, \$589.** Latest release of this visually-oriented database adds speed and features—including conditional branching capabilities and improved forms-drawing tools—without raising RAM requirements. Sep 95

★★★ **InfoDepot 2.0 (2.3), Chena Software, 610/770-1210, \$295.** Project-planning program includes tools for brainstorming and organizing ideas; scheduling project steps; and entering, calculating, and presenting data. It does a good job but has some flaws. Jan 95

★★★★ **MapInfo 3.0, MapInfo, 518/285-6000, \$1295.** Versatile mapping program that enables you to geocode the geographical data in a database, conduct spatial analyses, and create presentation graphics. Oct 95 

★★★★ **MarcoPolo 3.0, Mainstay, 805/484-9400, \$895.** Full-featured document-management system is significantly improved. The addition of OCR—both the handling of unrecognized words and the ability to batch-process TIFF files with OCR—make it very usable. Jan 95

★★★★ **Microsoft Excel 5.0, Microsoft Corp., 206/882-8080, \$339.** Although the feature set of this Power Mac spreadsheet is stunningly rich, the system requirements for a full install are jaw-dropping, including 27MB of hard drive space plus 24MB of RAM without virtual memory. Still, it is relentlessly complete. Jan 95 

★★★ **Microsoft Works 4.0, Microsoft Corp., 206/882-8080, \$99.95.** Although this isn't the best integrated package around, it's a sensible, low-cost choice. It offers a respectable word processor, database, spreadsheet, calendar, and address book, as well as a slide-show module, and drawing and communications tools. Jan 95 

★★★ **PhoneDisc 95 PowerFinder, Digital Directory Assistance, 617/639-2900, \$249.** Now, where did you put Aunt Ida's phone number? Never mind, it's on this CD-ROM telephone directory (assuming the dear old thing doesn't have an unlisted number). Oct 95

★★★ **Phyla 1.0.3, Mainstay, 805/484-9400, \$495.** While nonprogrammers can learn to use this object-oriented database, a little SmallTalk or C++ programming background wouldn't hurt. Aug 95

★★★★ **QuickFigure Pro 2.1, PelicanWare, 503/221-1148, \$49.95.** This Newton spreadsheet is fast, easy to use, and has a respectable set of functions. Oct 95

COMMUNICATIONS/NETWORKS

- ★★★★ **Apple Mobile Message System, Apple Computer, 408/996-1010, \$549 plus \$19.95 per month.** The medium for your messages can be a PowerBook, Windows notebook, or Newton with this multifaceted remote-messaging service. Keep in touch with a personal 800 number, voice and fax mailboxes, and an Internet E-mail address. Sep 95
- ★★★★ **ASAP 1.5, MicroBeam, 813/546-2727, \$695; \$795 with Windows client program.** File-transfer operations can be a nightmare. Or they can be a dream with this convenient utility. It's easy to set up and its performance is first-rate. Sep 95

★ **BLAST Professional, BLAST Inc., 919/542-3007, \$139.** Our reviewer could not get this telecom software to work reliably and consistently during his tests, and found the minimalist and quirky interface frustrating. Jan 95

★★★ **Claris EMailer 1.0, Claris, 408/727-8227, \$89.** If your electronic in-box is overflowing, you'll appreciate this E-mail-management program, which can manage mail over multiple online services. It has a few rough edges, but it offers an impressive suite of features at a good price. Dec 95 

★★★ **CreativePartner, emotion Inc., 415/812-9000, \$1500.** Creative collaboration goes digital with this distribution system for video, sound, text, and graphics. Although the system provides a clever way to send annotations over a network, our reviewer wished for either a higher number of features or a lower price tag. Jul 95

★★★★ **FileWave 2.1.2, Wave Research, 510/704-3900, \$895.** Maintain a central repository of files and distribute application updates to LAN users with this easy-to-use software-distribution tool. Excellent features include file distribution during idle time and the ability to copy-protect transferred files. Jul 95

★★★★ **GrabNet 1.0, ForeFront Group, 713/961-1101, \$19.95.** Inexpensive utility captures entire Web pages—including URLs—or selected text and graphics. Nov 95

★★ **HoloGate 1.0, Information Access Technologies, 510/704-0160, \$500.** Two unique features—UUCP and Usenet news distribution—are the primary reasons to consider this product. Otherwise, it comes up price-rich and feature-poor. Apr 95

★★★★ **MacAdministrator, Hi Resolution, 508/463-6956, \$395 (10-user pack).** Network administrators can use this well-designed group-administration tool to control and monitor hardware and software access. Dec 95

★★★★ **Netscape Navigator, Netscape Communications Corporation, 415/528-2555, \$39.** World Wide Web browser is well ahead of the competition in terms of features, stability, and ease of use. Although its E-mail features could use some improvement, it's the best way to surf the Net. May 95 

★★★★ **NetWorks 3.0.4, Caravelle Networks Corp., 613/225-1172, \$1395 to \$2495.** For networks that sprawl across buildings or states, this network-monitoring utility is an indispensable tool. It continually polls devices, checking CPUs, routers, printers, and hubs for signs of life. Apr 95

★★★★ **ProTerm Mac 1.0, InTrec Software, 602/992-5515, \$129.95.** This communications program offers a level of sophistication that belies its small size and ease of use. It's fast, reliable, and stable, and is suitable for simple BBS connections or sophisticated scripting. Jul 95

★★★ **QuickMail 3.0, CE Software, 515/221-**
continues

Star Ratings

1801, \$199 to \$3799. If you're shopping for a first-time E-mail application, this product is a good choice for ease of use and setup. The most promising new tool, rules-based messaging, lacks some important features. Jan 95

★★★ **RunShare, Run, Inc., 201/529-4600, \$199 to \$2499.** System extension endeavors to pump up file-transfer speeds across networks. It offers twofold to threefold throughput gains for fast Macs and large files but is less useful with small files or slow Macs. Feb 95

★★★ **Saber LAN Workstation, Saber Software, 214/361-8086, \$199 plus \$49 per node.** LAN-management package includes programs for network administration and remote software updating. Although it lacks some of the niceties of network-management software for other platforms, it's a useful tool for the price. Aug 95

★★★★ **Skyline/Satellite, AG Group, 510/937-7900, 1-station pack \$795; 5-station pack \$1195; 10-station pack \$1995.** Remote monitoring engines keep an eye on LAN traffic, using the Mac's Ethernet port. It's a great system, but for large LANs the price can go sky-high. Sep 95

★★★ **SnapMail 2, Casady & Greene, 408/484-9228, \$250 (5 users); \$420 (10 users); \$1940 (50 users).** Easy setup, simple administration, and a slew of new features make this an attractive E-mail package. Its gateway interface could use some improvement, though. Dec 95

★★★★ **Snatcher 1.0, Software Ventures, 510/644-3232, \$49.95.** FTP tool lets you connect to multiple sites simultaneously, transfer several files at once, and create scripts to automate repetitive tasks. Happily, you can continue to browse while downloading. Aug 95

★★ **TurboTalk 1.0, Information Presentation Technologies, 805/541-3000, \$160 to \$495.** This file-transfer utility speeds up network operations, but with many configurations the improvement is negligible. Oct 95

DESKTOP PUBLISHING

★★★★ **Adobe PageMaker 6.0, Adobe Systems, 206/622-5500, \$895.** Page-layout pioneer has been discreetly but thoroughly overhauled. More than 50 new features deliver high-power layout, typographic, and color capabilities that put it on a par with the competition. Nov 95

★★★ **ColorDrive 1.0, Pantone, 201/935-5500, \$199.** Centralized color-management software supports a broad range of color models, but accuracy isn't consistent. Nov 95

★★★ **Download Mechanic 1.0.2 (1.5), Acquired Knowledge, 619/587-4668, \$249.** The strengths of this PostScript downloader lie in its tools for dealing with problem files, but when dealing with large files, it performs slowly and occasionally crashes. Feb 95

★★★★ **FrameMaker 5.0, Frame Technology, 408/975-6000, \$895.** Despite a quirky interface, this is still the page-layout program of choice for complex technical documents, especially if they include multipage tables. This version lets you create sophisticated hypertext documents. Nov 95

★★★★ **Icefields 2.3, The Color Partnership, 619/259-8688, \$895.** Stochastic-screening software offers an alternative to traditional halftones. Although it doesn't support object-oriented graphics or hi-fi color, it's an effective, inexpensive tool. Nov 95

★★★★ **Let'er RIP 2.0 (2.0.1), Lupin Software, 916/756-7267, \$239.** The flexibility, clean implementation, and attention to detail of this PostScript downloader make it a pleasure to use. Feb 95

★★★★ **theTypeBook 4.0, Rascal Software, 805/255-6823, \$59.95.** The manual needs work, but this type-specimen generator provides enough customization options to make it a worthwhile purchase. Jun 95

EDUCATION/ENTERTAINMENT

★★★★ **3D Atlas 1.1, EA World, 415/571-7171, \$79.95.** Well-designed atlas enriches map data with narration, photos, and QuickTime movies. May 95

★★★★★ **A.D.A.M. The Inside Story, A.D.A.M. Software, 404/980-0888, \$79.95.** Multimedia anatomy CD-ROM teaches basic anatomy and physiology with a tantalizing mix of sound, graphics, and animation. If you are the least bit interested in learning more about how the human body works, buy this program. Mar 95

★★★ **Aquazone 1.0, Inago, 416/487-4005, \$59.** The fish in this aquarium simulation are beautiful, but they're darned hard to keep alive. Only two varieties of fish are included. Jan 95

★★★ **CyberBoogie, Times Mirror Multimedia, 314/531-2503, \$49.95.** The easy interface, bouncy songs, and cute graphics of this children's animation software make it a good choice for very young kids, but its relative lack of features restricts it to the same group. Apr 95

★★★★ **The Daedalus Encounter, Virgin Interactive Entertainment, 714/833-8710, \$59.95.** You've been blown to smithereens and your brain has been stuffed inside a robot. Don't you hate it when that happens? Escape from a doomed spacecraft in this interactive adventure. Sep 95

★★★ **Digital Chisel 1.2, Pierian Spring Software, 503/222-2044, \$199.95, site license \$995.** If I had a Chisel, I'd Chisel out some quizzes; I'd say how easy this is—no I wouldn't. Ahem. What I mean is: this authoring tool lets educators create interactive quizzes, but suffers from a nonstandard interface. Jun 95

★★★ **FrenchNow 3.0, Transparent Language, 603/465-2230, \$99 to \$129.** It could use a little polish, but this French-instruction tool provides a well-designed interface and lively, high-quality texts. Dec 95

★★ **Haight-Ashbury in the Sixties, Compton's NewMedia, 619/929-2500, \$49.95.** Turn on, tune in, and drop \$49.95 for a multimedia rehash of the San Francisco sixties. Sorry, but it's hard to capture those heady days in only 9 music snippets and 17 video clips. Dec 95

★★★ **Kids World, Bit Jugglers, 415/968-3908, \$30.** Although the painting tools could be more robust, this screen-saver-creation tool for kids is easy to use, cleverly designed, and can keep kids busy for hours. Mar 95

★★★★ **The Lost Mind of Dr. Brain, Sierra On-Line, 206/649-9800, \$44.95.** A wise-guy rodent tries to trip you up as you solve a series of hilarious and challenging brainteasers. Oct 95

★★★★ **Material World, StarPress Multimedia, 415/274-8383, \$59.95.** This multimedia CD-ROM provides a fascinating look at diverse cultures from around the world by documenting the lives of average families. Jun 95

★★★★ **Math Workshop, Broderbund Software, 415/382-4700, \$40.** Youngsters can have some fun while learning math with this collection of math-related and problem-solving games. Six-to-nine-year-olds will enjoy activities like Rhythm Shop and Bowling for Numbers. Aug 95

★★ **Merriam-Webster's Collegiate Dictionary on CD-ROM, Merriam-Webster, 413/734-3134,**

\$69.95. Except for its search capabilities, this dictionary doesn't offer much that sets it apart from its \$6 paperback counterpart. Definitely not the last word in CD-ROM-based dictionaries. Nov 95

★★★★ **Nile: Passage to Egypt, Discovery Channel Multimedia, 301/986-1999, \$49.95.** Armchair travelers will enjoy this CD-ROM cruise down the Nile. You can even keep a journal and take snapshots. Oct 95

★★★★★ **Passage to Vietnam, Against All Odds Productions/Interval Research, 800/558-3388, dept. 100, \$39.95 to \$59.95.** This exceptional CD employs the work of 70 renowned photographers to create a hauntingly beautiful portrait of Vietnam. It also includes seamlessly integrated music, video, and text. Dec 95

★★★ **Small Blue Planet 2.0 (2.0.1), Now What? Software, 415/885-1689, \$59.95.** The satellite photos of this atlas are truly dazzling, although the interface is less than world class. May 95

★★★★ **Storybook Weaver Deluxe 1.0, MECC, 612/569-1500, \$69.95.** Hooray for applications that encourage kids to be creative! This one lets them combine pictures, sounds, and words to make their own storybooks. May 95

★★★★ **Theorist 2.0, Waterloo Maple Software, 519/747-2373, \$299.** Despite an occasionally odd interface (for example, a hammer icon), this symbolic-math program is a great learning aid for students. Jun 95

★★★★ **WarPlanes 1.0, Maris Software, 800/336-0185, \$69.** Wonderful multimedia CD-ROM tours the post-WWII era in military aviation. As well as pictures and text, it includes rotatable models of aircraft, an extensive database, and three flight simulators. Mar 95

★★★★ **Widget Workshop, Maxis Software, 510/254-9700, \$44.95.** Fiendishly clever mad scientist's laboratory allows you to build Rube Goldberg-style widgets out of metronomes, switches, light bulbs, and much more. It encourages imagination and exploration, plus kids think it's cool. Apr 95

FINANCE/ACCOUNTING

★★★★ **Managing Your Money 7.0, MECA Software, 203/255-1441, \$79.95 (floppy); \$99.95 (CD-ROM).** Personal financial software's advanced investment features make it a good choice for sophisticated investors, while the CD-ROM's instructional articles are a plus for those who are new to computerized money management. Oct 95

★★★★ **M.Y.O.B. 5.0, BestWare, 201/586-2200, \$139; \$239 w/payroll.** A well-designed interface makes double-entry accounting easy enough for anyone to do. And—for those small-business owners who are keeping an eye on the bottom line—the price is right. May 95

★★★ **QuickBooks 3.0, Intuit, 415/322-0573, \$119.** Full-featured double-entry accounting program is easy to use, but its operation is not entirely Mac-like and its cryptic error messages may cause you to ignore serious problems. Jun 95

★★★★ **Quicken 5.0, Intuit, 415/322-0573, \$49.95.** A calendar and new ease-of-use features keep this personal finance software comfortably ahead of the pack. This upgrade is an incremental, but still welcome, improvement over an already excellent product. Feb 95

★★★ **StreetSmart 1.0, Charles Schwab & Company, 800/334-4455, \$59.** If Schwab is where you want your investments held, and if you want to have tighter control over your portfolio and to save on brokerage fees, you should seriously consider this financial investment software. Feb 95

GRAPHICS

★★★ **AddDepth 2.0, Ray Dream, 415/960-0768, \$99.** If your text and graphics are looking a little flat, you can extrude them with this 3-D effects program. New routines automate the design process, but drawing tools are still limited. Nov 95

★★★★ **Adobe Dimensions 2.0, Adobe Systems, 415/961-4400, \$199.** 3-D effects software has added color support, as well as drawing and text tools. Its ability to create resolution-independent 3-D images and map two-dimensional art earn Dimensions a place on a designer's hard drive. Apr 95

★★★★ **Adobe Photoshop 3.0, Adobe Systems, 415/961-4400, \$895.** Image-editing program both broadens its capabilities and simplifies its work environment in this dynamic upgrade. While it's not perfect, the pros far outweigh the cons. Jan 95

★★★ **Adobe TextureMaker 1.0 (2.0), Adobe Systems, 415/961-4400, \$199.** Versatile program lets you layer effects to create custom textures. The textures are impressive, but the program's a bit pricey. Oct 95

★★★ **Alien Skin Textureshop 1.0, Virtus, 919/467-9700, \$99.** Apply mutations to master textures to create custom patterns made up of seamless tiles. Control freaks won't like this program's random mutations, but it provides a simple way to create patterns. Jul 95

★★ **Art Explorer 1.0, Aldus Consumer Division, 206/628-2749, \$49.95.** While its cartoon style is refreshing and its features promising, this paint/draw program for kids is still rough around the edges. Its biggest limitation is that it's unusably slow on 68030 Macs. Feb 95

★★★ **Black Box 2.0, Alien Skin Software, 919/832-4124, \$119.** Ten filters let you add special effects to Photoshop images. A useful collection for a modest price. Nov 95

★★★★ **Blueprint 5.0, Graphsoft, 410/290-5114, \$295.** For plain old 2-D drafting, this CAD software has a rich, easy-to-use feature set and is admirably fast. The Power Mac version in particular is a first choice for large architectural or engineering diagrams. Jan 95

★★★ **CD-Q 2.0, Human Software Company, 408/741-5101, \$145.** Take advantage of Kodak's YCC format for Photo CD with this Photoshop plug-in, which lets you make color corrections and fine-tune color separations. If you frequently use Photo CD for image processing, this is the way to go—if you don't mind an inelegant interface and perfunctory documentation. Jul 95

★★★ **Claridraw 1.0 (1.0v2), Claris Corp., 408/727-8227, \$399.** For presentations without grand artistic pretensions, this draw program can be an effective tool. Jan 95

★★★★ **Color It 3.0, MicroFrontier, 515/270-8109, \$149.95.** Don't turn Old Paint out to pasture yet. This venerable paint program has been updated with a number of powerful new features, including precise control over pressure-sensitive input, convolution functions, and a focus filter. A great program for beginners. Aug 95

★★★ **Colorize 2.0, DS Design, 919/319-1770, \$495.** One-trick program lets you add color to TIFF images. (If you were a klutz with crayons, don't worry; you can select a tool that won't let you color outside the lines.) At \$495, color it expensive. Dec 95

★★ **FloorPlan Plus 1.1, ComputerEasy International, 602/829-9614, \$49.95.** Simple, affordable CAD program is intended for rudimentary design tasks. While it offers a good set of basic drafting tools, it falls short in several areas; only 16 colors are supported, for example, and rulers are nowhere to be found. Sep 95

★★★ **Flying Colors, Davidson & Associates,**

310/793-0600, \$59.95. While not the most dynamic kids' program, this paint/draw program provides easy-to-use tools and nicely drawn stamps for ages eight to adult. Feb 95

★★★★★ **Fractal Design Painter 3 (3.1), Fractal Design Corp., 408/688-8800, \$499.** Image-creation program has achieved a rare state of perfection, balancing enhanced conventional controls with spectacular effects packaged inside a tidy interface. It offers a new level of usability and genuine practicality. Apr 95

★★★ **FullPixelSearch 1.5, Avian Systems, 201/224-2025, \$1295.** Analyze scientific images with a variety of pixel-selection functions. It's a useful tool for scientists, but could use batch processing, scripting, the ability to handle 12- and 16-bit images, and a heftier manual. Jul 95

★★★ **Gryphon Batch It 1.0, Gryphon Software, 619/536-8815, \$199.** Arranges tiles in a visual interface to automate repetitive graphics operations. Although it lacks conditional statements, this batch processor is a time-saver. Jun 95

★★★ **IntelliHance 1.0, DPA Software, 214/517-6876, \$129 to \$299.** Photoshop plug-in automates the process of improving scanned graphics with color correction and control over contrast, focus, and graininess. Sep 95

★★★★ **KPT Convolver 1.0, MetaTools, 805/566-6200, \$199.** Create your own Photoshop filters the intuitive way with this imaginative and absorbing plug-in module. The interface allows you to experiment, combining effects, tweaking results, and applying multiple undos if necessary. Aug 95

★★★★ **KPT Vector Effects 1.0, MetaTools, 805/566-6200, \$199.** Adobe Illustrator and Macromedia FreeHand users will enjoy this imaginative collection of 13 plug-in filters that warp, distort, and otherwise alter vector-based images. Oct 95

★★★★ **Live Picture 2.0, MetaTools, 805/566-6200, \$995.** Latest version of this innovative image editor boasts lower RAM requirements, faster operations, and a much lower price tag than the original. Sep 95

★★★★ **MacDraft 4.0, Innovative Data Design, 510/680-6818, \$449.** Report-links to Excel and a clean interface make this 2-D CAD software an excellent choice for use in mechanical engineering and construction. Plus, it's easy to learn. Mar 95

★★★★ **MacPhase 2.0, The Otter Solution, 315/768-3956, \$279.** This speedy, feature-rich program offers the full spectrum of standard scientific and graphics image processing tools. Note that it's aimed at technical users, not dabblers. Aug 95

★★★★ **Macromedia FreeHand 5.0, Macromedia, 415/252-2000, \$595.** The new version of this venerable program has not only kept pace with the competition but has also added unique features of its own. Although the interface is more cluttered than ever, the wealth of new capabilities make this the drawing program to buy. May 95

★★★ **MovieFlo' 1.1, The Valis Group, 415/435-5404, \$899.** Tug, twist, and pinch your sister—or at least a digital image of her—with this special-effects program for stills or QuickTime movies. Well-designed application is hampered by a steep price and a poor manual. Jun 95

★★★★ **Paint Alchemy 2.0, Xaos Tools, 415/487-7000, \$199.** An interface lift, additional blending options, and improved animation controls make this flexible image editor an appealing add-on for digital artists. Sep 95

★★★★ **PhotoEnhancer 1.0, PictureWorks, 510/855-2001, \$129.** Nifty utility provides dozens of ways to improve the quality of QuickTake photos, from sharpening or softening focus to correcting over- or underexposed shots. Apr 95

★★★ **PhotoFix 2.8.8, Microspot U5A, 408/253-2000, \$249.** This image-editing/photo-enhancement program needs refinement, but its modest price and its ability to optimize images for output to low-end printers make it a useful tool. Sep 95

★★★ **PhotoFlash 2.0, Apple Computer, 408/996-1010, \$129.** If you want to enhance or catalog images acquired from a scanner or a digital camera such as Apple's QuickTake 100, consider this utility. It's not a high-end image-editing program, but it does offer basic image-retouching tools at a reasonable price. Jul 95

★★ **PhotoFusion 2.0.3, Ultimatte, 818/993-8007, \$695.** If your original shot is clean, this Adobe Photoshop masking plug-in does a good job. But in the real world, this program's poor manual and less-than-intuitive controls make it hard to use. Oct 95

★★★★ **Pixar Typestry 2.1, Pixar, 510/236-4000, \$299.** With QuickDraw GX support, an approachable interface, a strong array of animation features, and outstanding image quality, this 3-D type-effects software is worth a try. It adds a new dimension to the way you look at type. Feb 95

★★★★ **PixelPaint Pro 3.01, Pixel Resources, 404/449-4947, \$379.** Color paint program strikes a good balance between the artistic demands of painting and the technical precision of image processing. Mar 95

★★★ **PixelPutty Solo (1.5), The Valis Group, 415/435-5404, \$399.** Affordable modeler lets you manipulate 3-D objects as if they were clay. It's a capable program, but a bare-bones interface and skimpy manual make it somewhat daunting for novices. Jun 95

★★★★ **Poser 1.0, Fractal Design, 408/668-5300, \$199.** Specialized graphics tool generates three-dimensional human figures. Its appealing interface is simple enough for beginners, while its powerful graphics capabilities are suitable for professionals. Oct 95

★★★★ **PowerCADD 2.0, Engineered Software, 910/299-4843, \$795.** The latest incarnation of PowerDraw, PowerCADD is built for speed, but users will also take comfort in an enhanced interface and new drawing tools. Oct 95

★★★ **Ray Dream Designer 3.1.1, Ray Dream, 415/960-0768, \$349.** 3-D graphics program provides competent (if sometimes awkward) modeling tools, offers excellent surface-texturing capabilities, and produces high-quality ray-traced renderings. Mar 95

★★ **Select 1.6, Human Software Company, 408/741-5101, \$245.** Although its selection mode provides a convenient and intuitive way to make changes to several colors at once, all the features of this CMYK color-correction plug-in can be found in Photoshop. Jul 95

★★★★ **SmartSketch 1.0, FutureWave Software, 619/637-6190, \$69.95.** Innovative, easy-to-use graphics program unites the free-form creativity of a paint program with the structure and precision of object-oriented drawing. Sep 95

★★★ **Specular Collage 2.0.1, Specular International, 413/253-3100, \$399.** Practical image-compositing solution supplies a smooth interface and strong support for Adobe Photoshop 3.0. As long as you're willing to return to Photoshop to confirm your edits and make final changes, it's a serviceable tool. Feb 95

★★★★ **Texture5cape 1.5, Specular International, 413/253-3100, \$195.** Algorithmic art program lets you manipulate and arrange PostScript shapes to create seamlessly repeating patterns. Like the best tools, it's simple enough to be fun and flexible enough to give you meaningful control. Feb 95

continues

Star Ratings

★★★★ **Transverter Pro 3.0, TechPool Studios, 216/382-1234, \$395.** Graphics-conversion tool lets you preview PostScript files or convert them to other formats. A must-have for publishing professionals. Nov 95

★★★★ **TypeTwister 1.0, Adobe Systems, 415/961-4400, \$29.99.** Inexpensive, easy-to-use, and fun type styler lets you create wildly styled text effects, although it won't satisfy hard-core type manipulators. Jan 95

★★★★ **Virtus WalkThrough Pro 2.0, Virtus Corp., 919/467-9700, \$495.** Aside from occasional stumbles, this design tool is an exceptional program that lets you quickly and intuitively interact with your designs and gives clients the opportunity to visit and explore your creations before they are built. Apr 95

★★★★ **Vision 3d 4.0, Strata, 801/628-5218, \$695.** 3-D modeling, rendering, and animation package expands its array of modeling tools and adds two renderers. Plug-in extensions provide a practical way to customize the program, while easy-to-read documentation makes learning its many features relatively painless. Jul 95

★★★★ **Vistapro 3.0, Virtual Reality Laboratories, 805/545-8515, \$149.95.** 3-D landscape rendering software uses digital versions of U. S. Geological Survey maps to create images and allows you to add external features such as buildings and rivers. Although it's a good program, it has some limitations. Feb 95

★★★★ **Working Model, Visual Basic, 415/574-7777, \$2495.** Unlike Kate Moss, this Working Model has a robust set of features. This mechanical-simulation program works fine but would be more useful if it were Power Mac native. Dec 95

★★ **xRes 1.11, Fauve Software, 415/543-7178, \$799.** You can apply a variety of effects to selected areas of a large composition with this image editor. Although it offers pluses such as useful filters and customizable gradients, this program's numerous interface oddities make it less attractive than the competition. Jul 95

MATH/SCIENCE

★★★★ **The Fuzzy Logic Toolbox 1.0, MathWorks, 508/653-1415, \$895.** Control-system engineers who want to incorporate fuzzy logic into their systems will find this software an excellent aid. It includes a helpful tutorial and a well-designed graphical interface. Sep 95

★★★★ **LabView 3.1, National Instruments, 512/794-0100, \$1995.** With improved graphing and printing features, Power Mac optimization, and links to HiQ, this instrument-emulation software is a must for Macintosh-based laboratories. Nov 95

★★★★ **MLab, Civilized Software, 301/652-4714, \$1495.** Mathematical-modeling software lets you do fast computation on numerically complex real-world problems, using an ancient Mac II or higher. You must be willing to write short programs, but professional researchers will find it a rewarding choice. Apr 95

★★★★ **Statistica/Mac 4.1, StatSoft, 918/583-4149, \$695.** This statistical software is the undisputed features-per-dollar champion in the Mac market. Mar 95

★★★★ **Survival Tools 1.0 (1.1), Abacus Concepts, 510/540-1949, \$295.** The combination of survival analysis with the StatView template systems gives you a virtual actuary-in-a-box. It's a great set of tools, conveniently packaged. Feb 95

ORGANIZATION/PRODUCTIVITY

★★★ **ACT 2.0, Symantec Corp., 503/334-6054, \$249.95.** Contact manager's file-level compati-

ty with DOS and Windows and its complete contact management make it worth considering if you can live with its weak scheduling functions. Mar 95

★★★★ **Claris Organizer 1.0 (1.0v2), Claris Corp., 408/727-8227, \$99.** New personal information manager users, lured by the price, performance, and ease of use of this product, will find that it meets their needs. Most longtime PIM users won't be tempted to switch. Jan 95

★★★★ **ClarisWorks 4.0, Claris, 408/727-8227, \$129.** Dozens of delicate nips and tucks, rather than a massive overhaul, characterize the latest upgrade of this integrated program. Its word processor and database components can stand up to their stand-alone counterparts. Oct 95

★★ **ClieTrac 2.0, Whiskey Hill Software, 415/851-8702, \$99.** It's easy to enter contact information, but this PIM is slim on speed, features, and flexibility. May 95

★★★★ **Day-to-Day Organizer 1.0, Portfolio Software, 802/434-6400, \$149.95.** The address-book and outlining components of this organizer are great, but overall it's a mixed bag. The calendar interface and the way it handles recurring events need to be improved. May 95

★★★★ **Expresso 1.0, Berkeley Systems, 510/540-5535, \$69.99.** The just-the-basics approach of this calendar and address book might be just fine for people who don't need the feature set of other calendar programs and enjoy its graphics. Apr 95

★★★★ **FastPace Instant Contact 1.0 (1.1), Attain Corp., 617/776-1110, \$39.99.** Although this contact manager could use a few additional features—especially a menu-bar search function—it does a capable job, and it is intuitive and easy to use. Jan 95

★★★★ **FastTrack Schedule 3.0, AEC Software, 703/450-1980, \$299.** Updated version of this project planner includes a detailed calendar, a customizable Gantt chart, and new formatting columns, but additional customization options would be helpful. Aug 95

★★★★ **In Control for Workgroups 3.5, Attain, 617/776-1110, \$149.95; 10-pack \$949.95.** Flexible project planner and scheduler combines an outliner and a calendar. It's a valuable tool for networked groups that need to share project information. Sep 95

★★★★ **InfoGenie 1.0.5, Casady & Greene, 408/484-9228, \$79.95.** Data manager supports both free-form and field-based files, but list-view functions are limited. Nov 95

★★★★ **InTouch 2.5, Prairie Group, 515/225-3720, \$69.95.** Free-form contact manager offers speedy access to information. If you don't need to perform complex searches or sorts, this program is a good choice. Sep 95

★★★★ **Now Up-to-Date and Contact 3.5, Now Software, 503/274-2800, \$99.** New features such as an improved to-do list and a linked notepad make this the premier address-book and calendar program. Nov 95

★★ **Peanuts Family Organizer 1.0, Individual Software, 510/734-6767, \$19.95.** "Hey, Pop, can I borrow the car Saturday night?" "Look at the family PIM and check my calendar, Son." This organizer's endearing interface doesn't make up for missing or poorly implemented features. Jun 95

PRESENTATION TOOLS

★★★★ **Amazing Animation 1.0, Claris Corp., 408/727-8227, \$49.** Cute pictures, funny sounds, and a kid-friendly interface come together in this package that lets children produce short animations or interactive presenta-

tions. The canned animations and scenes grow tiresome, however. Jan 95

★★★★ **Authorware Professional 3.0, MacroMedia, 415/252-2000, \$4995.** Author! Author! This multimedia-authoring package is well suited to education-oriented projects. It offers a wealth of tools, tutorials, and media elements. (Speaking of wealth, this program is, alas, not cheap.) Dec 95

★★★★ **CyberSound FX 1.0, InVision Interactive, 415/812-7380, \$129.** Fifteen audio filters improve sound quality in Adobe Premiere. The filters are useful but somewhat hard to access. Nov 95

★★★★ **Electronic Marker 1.0.2, Consumer Technology Northwest, 503/643-1662, \$34.95.** This annotation tool can be a practical enhancement to live demos and on-screen presentations, but it needs better controls for modifying and preserving markup layers. May 95

★★★★ **HyperCard 2.3, Apple Computer, 408/996-1010, \$129.** Latest version of Apple's multipurpose application automates many design tasks, but multimedia presentations won't run on other platforms and color is treated as an afterthought. Nov 95

★★ **Living Album 2.5, QuickMedia Labs, 408/749-9200, \$129.95.** A crowded interface detracts from the usefulness—and aesthetics—of this multimedia album. May 95

★ **MediaFactory 1.0, Nuts Technologies, 408/980-7800, \$199.** What the world needs is a good, low-cost QuickTime movie editor. Unfortunately, this program isn't it. It's hampered by poor documentation and an awkward interface. Nov 95

★★★★ **MediaPaint 1.0, Strata, 801/628-5218, \$695.** Anyone who produces special effects for QuickTime movies will welcome this program, which lets multimedia developers edit ranges of frames. Although it's a RAM hog, this useful tool removes much of the tedium of special-effects work. Sep 95

★★★★ **Microsoft PowerPoint 4.0, Microsoft Corp., 206/882-8080, \$339.** If you're in the market for a presentation-graphics program, this is a good choice to use along with Word or Excel, as long as you don't mind the lack of animation functions. For general purposes, though, other alternatives have the edge. Feb 95

★★ **mPower 2.0, Multimedia Design Corp., 704/523-9493, \$295.** Despite a handful of sophisticated multimedia features, this authoring tool is too limited to be compelling. While its push-button interface is easy to understand, it's far too cumbersome. Apr 95

★★★★ **Presenter Professional 3.0, VIDI, 818/358-3936, \$1995.** The improved interface, enhanced animation module, and reduced price of this 3-D modeling and animation package make it an excellent choice for multimedia producers. The new audio features are especially appealing. May 95

★★ **Special Delivery 2.0, Interactive Media Corp., 415/948-0745, \$399.** Multimedia authoring tool can be confusing and isn't the best choice for complex projects. Still, it may save hours of training for users who merely need to create simple presentations. Apr 95

★★★★ **SuperCard 1.7.1 (2.0), Allegiant Technologies, 619/587-0500, \$495.** Multimedia authoring system adds a few welcome enhancements and squashes some old bugs. For current users, the upgrade is well worth the price; for others, it's an excellent alternative to more expensive authoring systems. Feb 95

★★★★ **TransJammer, Elastic Reality, 608/273-6585, \$99.** Plug-in for Adobe Premiere and Avid VideoShop offers 100 customizable video-transition effects, ranging from the conventional to the, well, odd (like falling

cows). If you've ever tried to make your own falling-cows transition, you'll appreciate this time-saving tool. **Aug 95** 🍎

PROGRAMMING

★★★★ **AppWare 1.2, Novell, 801/429-7000, \$495.** Development system offers professional and novice programmers an efficient, graphical method of creating commercial or in-house applications. **Oct 95**

★★★★ **FaceSpan 2.0, Software Designs Unlimited, 214/578-6700, \$199.** Programmer's tool lets you quickly build AppleScript interfaces. New features such as drag-and-drop functions and tables make it easy to create stand-alone applications. **Nov 95**

★★★★ **JAM 6, JYACC, 212/267-7722, \$2000.** Thanks to this well-designed tool, the Mac is now a viable platform for development of large-scale corporate client-server database applications. **Oct 95**

★★★ **Script Debugger 1.0, Late Night Software, 604/929-5578, \$129.** If only they'd used this on Ishtar! Oh, not that kind of script. This AppleScript development environment has a thoughtfully designed interface but falls a little short in the debugging department. **Nov 95** 🍎

★★ **ScriptWizard 1.0, Full Moon Software, 408/253-7199, \$99.** Software attempts to make writing and debugging AppleScript scripts easier. But it doesn't offer enough improvement over Apple's Script Editor. **Jan 95**

★★★ **Symantec C++ 8.0, Symantec, 503/334-6054, \$499.** The new version of this development environment offers native PowerPC compilers for C++ and ANSI C. The project manager and class browser have been improved and the compiled code is laudable, but our reviewer had some complaints about the package's resource demands and the company's support reputation. **Jul 95** 🍎

★★★★ **VIP-C 1.5 (1.5.1), Mainstay, 805/484-9400, \$495.** For convenience in producing 680X0/Power Macintosh applications, this programming utility is a fine investment. Intermediate to advanced users will get the most benefit, but even beginners will find that it helps turn student projects into serious apps. **Feb 95** 🍎

UTILITIES

★★ **Adobe ScreenReady 1.0, Adobe Systems, 415/961-4400, \$199.** Utility converts PostScript files to PICT for multimedia projects, but its overzealous antialiasing may leave designers in a dither. **Dec 95**

★★★ **Aladdin Desktop Tools 1.0, Aladdin Systems, 408/761-6200, \$89.95.** Not all the utilities in this collection are perfectly implemented, but Desktop SpeedBoost and Desktop Printer make the package worth its price. The rest can be considered a bonus. **Aug 95**

★★★★ **At Ease 3.0 for Workgroups, Apple Computer, 408/996-1010, \$295.** Network administrators can choose among three levels of access for users with Apple's program launcher. **Nov 95**

★★★★ **BeyondPress 1.0, Astrobyte LC, 303/534-6344, \$595.** Those who have put off making Web pages are in luck; this handy (albeit pricey) utility converts QuarkXPress documents to HTML documents. **Dec 95**

★★★★ **Cal 1.0, Thought I Could, 212/673-9724, \$79.95.** Well-chosen set of desktop necessities includes an excellent calculator, an associated-formula editor, a datebook, and a calendar. Due to its easy access and ample power, this software has become an everyday tool for our reviewer. **Jan 95**

★★★ **CanOpener 3.0, Abbott Systems, 914/747-4171, \$125.** You can use this handy utility to open many types of files—which can be a lifesaver if you don't have

the application a file was created in—but it falls a little short in the file-search department. **May 95**

★★★★ **CD Directory 1.0, Insignia Solutions, 415/694-7600, \$69.95.** Store catalogs of CD directories on your hard drive—and access them at hard drive speeds—with this handy utility. One complaint: cataloged CDs are treated as local drives, greatly increasing search time during a global search. **Jul 95**

★★★ **Color Compass 1.0 (1.1), Praxisoft, 703/729-3391, \$129.** Speedy, specialized tools allow you to blend, match, and tweak colors in subtle ways not possible in most programs. Although graphics experts might not need this program, it provides helpful visual feedback for creating and organizing color palettes. **Aug 95**

★★★★★ **Conflict Catcher 3, Casady & Greene, 408/484-9228, \$99.95.** This extension-management utility was already great—and it just got better. Like a digital Jimmy Carter, it offers a friendly, flexible approach to conflict resolution. **Sep 95** 🍎

★★★★ **Disc-To-Disk, Optical Media International, 408/376-3511, \$199.** Audio-capture utility's friendly interface provides a simple way to transfer sound from a CD to the Mac's hard drive. A useful tool for multimedia authors. **Jun 95**

★★★★★ **DiskGuard 1.0.1 and DiskGuard Remote, ASD Software, 909/624-2594, \$129 to \$799.** Rock-solid, flexible disk-protection tools are worth serious consideration if your Mac or Macs are accessible to other users. The remote version (which comes in five- and ten-user packs) adds network features, including clock synchronization. **Mar 95**

★★★ **DragStrip 1.0, Natural Intelligence, 617/876-4876, \$39.95.** Icon-based file and folder organizer brings a semblance of order to your cluttered desktop. But your troubles aren't over unless a future version lets you label folders. **May 95**

★★★ **File Genie Pro 1.1, Duet Development, 408/559-3838, \$89.** File-management utility offers fast, convenient cataloging and searching of stored files, but its search criteria are limited. **Oct 95**

★★★★★ **FolderBolt Pro 1.0.3, Kent Marsh, 713/522-5625, \$129.95.** Feeling unsecured? Top-notch encryption schemes and flexible access controls let you secure your Mac's contents by password-protecting folders and encrypting the data they contain. **Jul 95** 🍎

★★★ **Gear 2.5, Elektroson, 610/617-0850, \$799.** CD-recordable mastering software is a mixed bag. It's speedy and reliable, but can't record HFS CD-ROMs from just a portion of a hard drive without additional software. **Sep 95** 🍎

★★★★★ **Graffiti 1.01, Palm Computing, 415/949-9560, \$79.** If you can't seem to teach Newton your handwriting, you can teach yourself a new writing system that Newton can handle. Kind of makes you wonder who's running the show, but it works. **May 95**

★★★ **Here & Now 1.0, Software Architects, 206/487-0122, \$89.95.** OK. We admit it. Lots of people use DOS and Windows. This utility modifies Mac files so you can read them on a PC. **Nov 95**

★★★★★ **InstantReplay 1.0, Strata, 801/628-5218, \$149.** Now you see it, now you see it again. This utility records on-screen activity and saves it as a QuickTime movie, including audio. File-conversion capabilities are an added bonus. **Sep 95**

★★★★★ **Kaboom 3.0, Nova Development Corp., 818/591-9600, \$49.95.** Sound-effects utility with sound-editing application is a fun program for anyone who wants to play with sound. **Feb 95**

★★★★★ **Launch Pad 1.0, Berkeley Systems,**

510/540-5535, \$49.99. If you want to share your Mac with your kids, this desktop utility is a worthwhile investment. It can even speak menu items and file names out loud for kids too young to read. **Jan 95**

★★★ **MacTools Pro 4.0, Symantec Corp., 503/690-8090, \$149.95.** This utility does a good job of diagnosing and fixing disk problems, but suffers from large RAM requirements and expensive tech support. **May 95** 🍎

★★★ **Menu Master Mac, Electronic Learning Systems, 904/375-0558, \$99; 15-site license \$299.** Security software lets an administrator restrict a user's access to certain files on a shared Mac. It's a useful program, but could use some additional features, such as the ability to restrict computer usage to particular times. **Sep 95**

★★★★★ **MultiClip Pro 3.1, Olduvai Corp., 305/670-1112, \$59.** Easy-to-use utility is exactly what Apple's Clipboard and Scrapbook should have been; a convenient repository of data that moves between documents without fuss or muss. **Apr 95**

★★★ **Multimedia Utilities 1.1, Motion Works, 415/541-9333, \$299.** Six utilities address QuickTime moviemaking, from editing movies and sound tracks to creating morphs, animations, and screen recordings. Although the utilities are appealing, you must save early and often because of frequent crashes. **Jul 95**

★★★★★ **Norton DiskDoublerPro 1.1, Symantec Corp., 503/334-6054, \$109.** Utility collection includes DiskDoubler, AutoDoubler, and CopyDoubler. Because of its ease of use, the product is a good choice for beginners. **Feb 95** 🍎

★★★ **Norton Utilities for Macintosh 3.1, Symantec Corp., 503/334-6054, \$149.95.** Data-protection and -recovery utility collection is leaner, meaner, and faster than ever before, but it's also surprisingly uneven. While Disk Doctor leads the pack for disk-repair utilities, the back-up module is weak and the new UnErase module is missing some features. **Feb 95** 🍎

★★★★★ **Now Utilities 5.0, Now Software, 503/274-2800, \$89.** Three of the modules of this fine-tuned, interlocking utility set—Now FolderMenus, Now Menus, and Now SuperBoomerang—are almost indispensable, and while the other six may not be tops in their category, they're well worth considering. As a collection, this package remains the best in the business. **Jan 95** 🍎

★★★ **On Cue II Utilities 3.0, ComputerEasy International, 602/829-9614, \$99.95.** Eight modules add functionality to the Mac Operating System. It's useful, but not as comprehensive as the competition. **Sep 95**

★★★★★ **OptiMem RAM Charger 2.0.1, Jump Development Group, 412/681-2692, \$129.** Use RAM more efficiently with this memory-management utility. The Mac OS ought to work like this, but until it does, you should use this nifty utility. (An added bonus: it works on older Macs, back to the Mac Plus.) **Jul 95**

★★★ **PaperPower 1.0, Piptel, 513/294-6656, \$149.** Graphics-tablet utility provides a useful tool for creating and using macros, but the overlays it creates can be tricky to use. **Apr 95**

★★★ **Peirce Print Tools 1.0, Peirce Software, 408/244-6554, \$129.** Nine handy printing utilities work with QuickDraw GX. Most of the modules are useful, but not all are must-haves. **Jan 95**

★★★★★ **Power Secretary Power Edition 2.0, Articulate Systems, 617/935-5656, \$2495.** This impressively accurate speech-recognition program sits on your Mac and takes dictation, learning your voice patterns as you use it. It's expensive, but provides a viable alternative to keyboard input. **Sep 95** 🍎

continues

Star Ratings

★★★ **RapidCD 1.04, Insignia Solutions, 415/694-7600, \$69.95.** RAM and disk caching of CD-ROM data speeds access to frequently used data. This utility does its job well, but it's incompatible with the AppleCD Audio Player and doesn't allow you to add to its settings. Jul 95

★★★ **RescueTxt 1.0, Abbott Systems, 914/747-3116, \$79.** For decent performance and the ability to locate text in even a deleted file, this text-retrieval utility is a good choice. But it doesn't tell you what file the text comes

from, so you can't just open the found file. Apr 95

★★★★ **5/Link 2.0, Synclavier, 603/448-8887, \$249.** Batch-processing is this audio-conversion utility's specialty. It supports all major audio file formats and offers a straightforward interface. Nov 95

★★★★ **Stuffit Deluxe 3.5, Aladdin Systems, 408/761-6200, \$129.95.** If you're looking for a compression solution, you should look at this product. Its drag-and-drop applications, Magic Menu, and file translators make

it easy to integrate compression into your routine. Mar 95

★★★★ **TypeTamer 1.0.4, Impossible Software, 714/470-4800, \$59.95.** Versatile font utility provides information on installed fonts and simplifies tasks such as typing special characters and reselecting fonts from the menu. May 95

★★★★ **ultraSecure 3.524, usrEZ Software, 714/756-5140, \$239.** Security program offers a comprehensive set of protection tools, but has a few flaws, including incompatibilities with several types of programs. Sep 95

★★★★ **Virex 5.5.1, Datawatch Corporation, 508/988-9700, \$99.95.** Comprehensive, reliable, and speedy utility helps protect your files from those misguided lads who get their jollies by releasing viruses. To keep it current, updates are available on online services. May 95

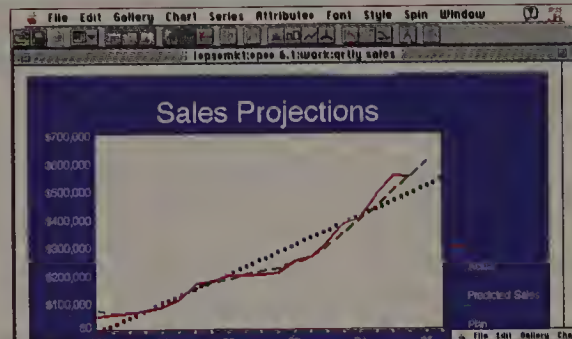
★★★ **Zonkers 1.0, Nova Development, 818/591-9600, \$19.95.** Redecorate your Mac with this collection of silly desktop enhancements. Customize icons, scroll bars, cursors, buttons, menu bars, windows, and desktop patterns to create your own look. Aug 95

SPSS 6.1 for the Macintosh® Real Stats. Real Easy.

**Accelerated
for Power
Mac!**

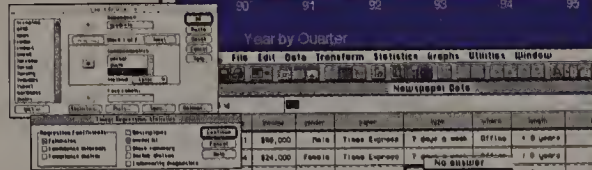
Get answers to tough questions using in-depth statistics!

Use 60+ statistics from basics such as counts and crosstabs to more sophisticated statistics including factor, regression and logistic regression.



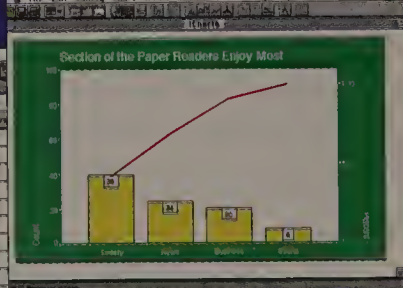
Get fast, flexible data management!

The spreadsheet-style Data Editor makes entering, editing and managing your data fast and easy using either values or value labels. And, you can work with even your largest data files!



Work faster with an all new Macintosh interface!

Learn faster using an online tutorial and speed up analysis with task-oriented help, a statistical glossary and a new toolbar. Plus, you get fast access to all statistics through menus and dialog boxes without typing commands!



See your results quickly and clearly!

Choose from 50+ high-resolution business, statistical and SOC charts. All can be fully edited with easy point-and-click tools.

Use SPSS 6.1 for the Macintosh when you need in-depth answers quickly and easily. Go beyond summary statistics and spreadsheet row-and-column math by using the right tool for the job. SPSS enables you to answer tough questions like:

- How satisfied are my customers?
- What will my sales be next quarter?
- What are the patterns in my data?

Survey research

- Explore consumer awareness
- Compare perceptions of products
- Discover preferences by group

Marketing and sales analysis

- Analyze your customer database
- Forecast sales by product and region
- Improve mailing responses



Call 1(800)457-8287

Quality improvement

- Assess process capability
- Reduce nonconformance
- Spot unnatural patterns of variation

Research of all types

- Test hypotheses
- Determine group differences
- Track performance over time

Get a great value — order now!

Call 1(800)457-8287

or Fax 1(800) 841-0064

or mail to: SPSS Inc., 444 N. Michigan Ave.
Chicago, IL 60611

American Express, Discover, MasterCard,
VISA and I.M.P.A.C. cards accepted

Name _____
Title _____
Organization _____
Address _____
City _____ State _____
ZIP _____ Email _____
Phone () _____ Fax () _____

**Try SPSS 6.1 for the Macintosh
with our unconditional, 60-day
money-back guarantee.**

SPSS
Real Stats. Real Easy.™

Athens • Chicago • Washington, D.C. • Bologna • Chertsey • Gonnheim • Madrid • Munich • New Delhi • Paris • Singapore • Stockholm • Sydney • Tel Aviv • Tokyo • And distributors worldwide

Circle 85 on reader service card

interesting, some images were incorrectly labeled. Feb 95

★★★★ **Nightingale 2.0**, TAP Music Systems, 206/462-1007, \$495. With its lightning speed, powerful editing tools, and OCR entry option, this bird can stand up to any music-notation product on the market. Oct 95

★★★★ **Overture 1.02**, Opcode Systems, 415/856-3333, \$495. Easy-to-learn, midrange notation software has a friendly interface and shows real polish. If you don't need all the features of a high-end product, it's a serious contender. Apr 95

★★★★ **Performer 5.02**, Mark of the Unicorn, 617/576-2760, \$495. A colorful, redesigned interface and improved sheet-music view are just part of this MIDI recording program's worthwhile overhaul. If you like the sheet-music view, this is the product to buy. Mar 95

★★★★ **Practica Musica 3.0 (3.1)**, Ars Nova Software, 206/889-0927, \$140. Music-teaching program, with emphasis on sight-reading and ear-training techniques, shines as a smart, infinitely patient personal music coach in the classroom. Jan 95

★★★★ **Route 66 1.S**, Route 66 Geographic Information Systems B.V., 415/957-0666, \$79.95. Jack Kerouac could have saved a lot of time if he'd used this route planner (unless he was driving to Alaska, which isn't included). It's fast, but omits some cities and can't handle more than three destinations at a time. May 95

★★★★ **Storyboard Artist 1.5**, PowerProduction Software, 310/937-4411, \$499. Build a storyboard by selecting backgrounds, characters, and props from a library. While it's a helpful tool, starving artists will find its price too high. Oct 95

★★★★ **Vision 2.08**, Opcode Systems, 415/856-3333, \$495. MIDI program's list of exclusive, creativity-slanted features, such as endless count off and scrubbing (which lets you hear the music as you drag across it), give the program a usability edge. Mar 95

★★ **Visual Arranger 1.0**, Yamaha Corporation of America, 714/522-9240, \$59.95. Icons represent musical styles in this song-building program. It's fun, but the icons can be cumbersome, and the program lacks features required by professional musicians (such as precise expression controls). Nov 95

WRITING TOOLS

★★★★ **Bookends Pro 3.1**, Westing Software, 415/435-9343, \$129. Comprehensive database program catalogs and stores all of your reference material—actual quotes as well as citations. It's a useful tool that researchers will appreciate. Mar 95

★★★★ **EndNote Plus 2.0**, Niles & Associates, 510/649-8176, \$299. Despite its power, this indispensable bibliography and citation manager is surprisingly easy to learn and use. If you have to work with references, it's a good choice. Apr 95

★★★★ **FullWrite 2.01**, Akimbo Systems, 617/776-5500, \$395. As the leanest of all high-end word processors, this product requires only 2MB of RAM. Its modular architecture is complex, but it's worth considering if you don't need to share files with the Word/WordPerfect crew. Apr 95

★★★★ **Grammatik 6 for Macintosh**, Novell, 801/225-5000, \$49.95. The low price, pleasant interface, and improved accuracy of this grammar checker make it worthwhile for a large number of quality-driven writers. It still misses some errors. Feb 95

★★★★ **Inspiration 4.1**, Inspiration Software, 503/245-9011, \$195. Writing tool allows you to move between words and diagrams to show the relationships

between ideas. This version adds improved keyboard controls, import and export capability, plus more. Apr 95

★★★★ **Microsoft Word 6.0**, Microsoft Corp., 206/882-8080, \$339. If you can put this word processor's new features—including cross-referencing, AutoText, automatic numbering, macros, and more—to work and you have a Quadra 650 or faster Mac, take the plunge. If you have a slower 68040 Mac, think twice; and if you have a 68030 Mac, don't even think about it. Feb 95

★★★★ **Nisus Writer 4.0**, Nisus Software, 619/481-1477, \$495. In a few specialized areas—such as mixing English and non-Romance languages—this word processing program is unmatched. However, for some high-end uses, such as table creation, it's a poor choice. Mar 95

★★ **Read-It O.C.R. Pro 5.0**, Olduvai Corp., 305/670-1112, \$395. Although this OCR software has a nice collection of features, its recognition engine isn't up to par. It's not a first choice unless you simply need to process piles of very clear Courier text. Apr 95

★★★★ **Three by Five 2.0**, MacToolkit, 310/395-4242, \$99. How retro! This idea organizer uses the metaphor of index cards on a corkboard. Unlike real index cards, the program lets you attach QuickTime movies, link cards, or switch to an outline view. Aug 95

Hardware

INPUT DEVICES

★★★★ **ArtPad**, Wacom Technology, 206/750-8882, \$199. Measuring less than 7 by 7½ inches, this pressure-sensitive tablet is sheer convenience if you're looking for a device that you can hide away one moment and readily exhume the next. Apr 95

★★★★ **ArtZ II**, Wacom Technology, 360/750-8882, \$389.99. What will they think of next? This graphics tablet includes a stylus with an eraser that works like the real thing! Dec 95

★★★★ **ChoiceStick 1.0.2**, Kernel Productions, 302/456-3026, \$69.95. Entering data into a spreadsheet is much quicker if you use a joystick instead of a mouse. Well, maybe you can convince your boss of that. Otherwise, use this port to attach a pair of joysticks to your Mac so you can play games. Sep 95

★★★★ **DrawingSlate II**, CalComp, 602/948-6540, \$395. A responsive stylus and user-definable macros make this digitizing tablet an excellent choice for artists and illustrators. Jun 95

★★★★ **GlidePoint**, Alps Electric, 408/432-6000, \$99. If you find moving the mouse a pain in the arm, you might want to try this alternative pointing device, which lets you position the cursor by moving your finger across its surface. Jul 95

★★ **Jetstick**, CH Products, 619/598-2518, \$74.95. Our reviewer liked this joystick's hardware, but found the manual and the software lacking. Sep 95

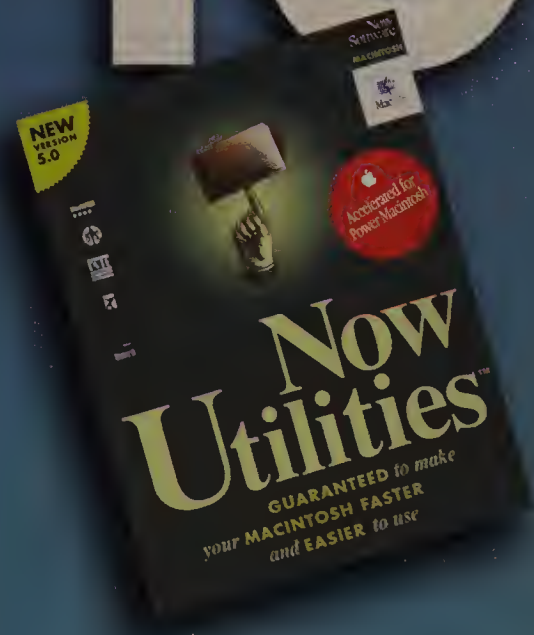
★★★★ **MacAlly**, The Mace Group, 213/780-6110, \$49. It may not be a better mouse, but it's a cheaper one. This ADB mouse doesn't stand out from the crowd, but it's durable, glides smoothly, and won't leave a big hole in your pocketbook. Jul 95

★★★★ **Mouse Deluxe Mac**, Micro5speed, 510/490-1403, \$69. The extra buttons of this mouse offer several features that Apple's mouse doesn't match, but its shape may not suit everyone's taste. Mar 95

★★★★ **Mouse-Trak**, Itac Systems, 214/494-3073, \$179. If you hate meeses to pieces, you might try

continues

How to make 7.5 a 10



"Now Utilities is the best overall collection of utilities you can buy for your Mac."

— MacUser, August 1995

To find out how to make System 7.5 even faster and easier to use, call:

1-800-237-2078

Now Software

It's about time.

Circle 38 on reader service card

Star Ratings

this trackball input device. It's sturdy, but our reviewer found its side buttons too small. **Nov 95**

★★★★★ **PaperPort, Visioneer, 415/812-6400, \$399.** The paperless office is actually here. This clever combination of elegant hardware and intelligent software makes it easy to capture, organize, and retrieve documents. Once a page is scanned in, you can annotate it; run it through OCR software; or print, fax, or E-mail it. **May 95**

★★ **Point Pad, Hagiwara Sys-Com, 619/546-9989, \$99.** Compact touchpad lets you control the cursor with stylus or finger, but you can't fine-tune cursor response. **Oct 95**

★★★★ **QuePoint, MicroQue, 801/263-1883, \$149.** Tired of shoving a mouse around? Slide your finger across this tiny input device to manipulate the cursor with a minimum of movement. **May 95**

★★★★ **Remote Point, InterLink Electronics, 805/484-1331, \$199.** Although it may not be a first choice for desktop work, this infrared pointing device is an elegant workaround for users who don't want to (or can't) be tethered to their Macs. **Apr 95**

★★★★★ **Thinking Mouse Macintosh ADB, Kensington Microware, 415/572-2700, \$139.95.** A mouse is a mouse is a mouse. Not so. This one has four programmable buttons that you can use—with the accompanying software—to automate such tasks as selecting commands and typing text. **May 95**

★★★★ **Trackball Pro ADB, CH Products, 619/598-2518, \$119.95.** Although this trackball is less expensive than the competition's, it falls short in programmability and overall functionality. **Sep 95**

MISCELLANEOUS HARDWARE

★★★★ **Apple PCMCIA Expansion Module, Apple Computer, 408/996-1010, \$219.** Well-integrated, well-designed unit offers 500-series users an efficient and easy albeit expensive way to add features to their PowerBooks. If you can overlook the early-adopter prices (a big if), the PC Cards are great expansion options—lightweight, low-power, and high-performance. **Mar 95**

★★★★★ **Colortron, Light Source Computer Images, 415/925-4200, \$1195.** Getting the colors on your screen to match those in your output is now easy and affordable, thanks to this hand-held spectrophotometer, which measures transmissive and reflective sources. **Jun 95**

★★★★★ **DayStar PowerPro 601/DayStar Turbo 601, DayStar Digital, 404/967-2077, PowerPro 601 \$1599; Turbo 601 \$1499.** Squeeze more performance out of your Mac with these impressive 601-based accelerator cards. **Sep 95** ☉

★ **EAB401P Speakers, Panasonic Communications & Systems, 800/742-8086, \$99.** Small, inexpensive speakers provide less-than-state-of-the-art performance. The audio is thin and reedy. **Apr 95**

★★ **EAB701P Speakers, Panasonic Communications & Systems, 800/742-8086, \$249.** The sound of these speakers is thin and slightly harsh, although they are attractive in a high-tech sort of way. **Apr 95**

★★ **Labtec LCS-3210, Labtec, 360/896-2000, \$169.99.** These loudspeakers are decent, but their midrange is unimpressive and their 3-D sound feature is poorly implemented. **Dec 95**

★★★★★ **MMS557, Audio-Technica USA, 216/686-2600, \$149.95.** Among a huge selection of similar-

ly priced speaker systems, these stand out as a best buy. They look good, as well as sound good. **Apr 95**

★★★★★ **MultiSpin 4Xe, NEC Technologies, 708/860-9500, \$515.** With its competitive price, free tech support, and two-year warranty, this quad-speed CD-ROM player is ready to race. **Feb 95**

★★ **NEC AudioTower, NEC Technologies, 800/632-4636, \$99.** Looks great; sounds mediocre. Although this speaker system provides a convenient jack for an external CD drive, the sound quality is nothing to shout about. **May 95**

★★★★★ **Photo Engine, Radius, 408/541-6100, \$1099.** Photoshop acceleration hardware's suite of four 66MHz 32-bit DSP chips offers sufficient processing power to speed up 25 Photoshop functions on the most sophisticated systems, including Power Macs. **Feb 95** ☉

★★★★★ **Reno Portable CD-ROM Player, MediaVision, 510/770-8600, \$349.** Have CD-ROM, will travel. This portable player is lightweight, versatile, and easy to set up; about the only complaint is its short battery life. **Jun 95**

★★ **Smart Label Printer EZ30, Seiko Instruments USA, 408/922-5800, \$199.** This label printer is small, inexpensive, and easy to use. Unfortunately, it's slow, requires special labels, and produces poor-quality text. **Nov 95**

★★★★★ **Vivace, Coda Music Technology, 612/937-9611, \$2295.** As an intelligent and endlessly patient accompanist, this music study system for wind instruments may be the best thing that's happened to learning wind literature since the metronome. **Jan 95**

★★★ **Vivid 3D Pro, NuReality, 714/442-**

Simply the best font tool available for the Mac!



MW ★★★★★

May 1995

Impossible Software, Inc.

Outside CA: 800.470.4801

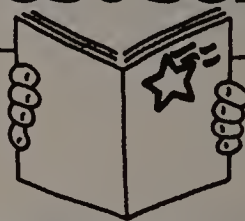
Inside CA: 714.470.4800

<http://www.impossible.com>

TypeTamer is a trademark of Impossible Software, Inc.

Circle 10 on reader service card

This could be a best seller.



But it's free.

You can't buy the Consumer Information Catalog anywhere. But you can get it, free! It's your guide to more than 200 free or low-cost government publications about getting federal benefits, finding jobs, staying healthy, and more. The Catalog is free. The information is priceless. Write:

**Consumer Information Center
Department BEST
Pueblo, CO 81009**

1080, \$149.95. This sound-enhancement system uses the SRS technique to produce 3-D sound from a pair of speakers. While it's great for system sounds and games, it's less impressive for audio CDs. Aug 95

★★★★ **YST-551010, Yamaha Corporation of America, 714/522-9240, \$349.95.** With a name like YST-SS1010, you have to be good. And it is. This satellite-and-subwoofer speaker system is highly recommended, despite its mediocre manual. Jul 95

MODEMS/NETWORK HARDWARE

★★★★ **GeoPort Telecom Adapter Kit, Apple Computer, 408/996-1010, \$129.95.** Adapter unlocks the software modem built into 680X0AV and Power Macs, providing access to voice, data, and fax services. Our reviewer wanted faster transmission speed, better OCR capability, and a lower price. Oct 95

★★★★ **Internet Server Solution for the World Wide Web, Apple Computer, 408/996-1010, \$2909.** It's not ideal for all types of Internet publishing, but this hardware-and-software bundle is a starting place for people who want to be publishers, not technicians. Oct 95

★★ **Manta 500 EN/Starfish Ethernet Access Point, Digital Ocean, 913/888-3380, Manta \$799; Starfish \$1850.** This wireless Ethernet station/access point duo is much slower than its wired counterparts. It's more expensive, too. Dec 95

★★★★ **OneWorld Combo, Global Village Communication, 408/523-1000, \$1499 without modems; \$2099 with modems.** It is the very model of a multiuser modem pool. You can't receive a fax but bar-

ring that this server's really cool. Sep 95

★★★★ **OneWorld Internet 1.0, 700 Series, Global Village Communication, 408/523-1000, \$1699 plus monthly fee.** Users of an office network can connect to the Mother of All Networks with this Internet gateway. It offers E-mail and direct Internet access in an approachable format. Jun 95

★★★ **Power Class 28.8 Data/Fax Modem, Motorola, 205/430-8000, \$395.** Superior connection speeds and easy setup are attractive, but this modem comes with mediocre fax/telecommunications software and doesn't support V.Fast connections. Oct 95

★★★★ **TelePort Platinum, Global Village Communication, 408/523-1000, \$279.** If you want V.34 (28.8-Kbps) data and 14.4-Kbps faxing capability, incoming-call recognition, and an answering machine—all over a single telephone line—this reliable fax modem has it all covered. Aug 95

PRINTERS

★★★★ **Apple Color StyleWriter 2200, Apple Computer, 408/996-1010, \$419.** Inexpensive, lightweight color ink-jet printer is ideal for creating color presentations when you're on the road. Nov 95

★★★★ **Apple Color StyleWriter 2400, Apple Computer, 408/996-1010, \$525.** Economical, Quick-Draw-based color ink-jet printer offers gorgeous color output plus fast black-and-white printing. If you don't need DOS/Windows compatibility, it's a good buy. Apr 95

★★★★ **HP LaserJet 5MP, Hewlett-Packard, 800/752-0900, \$1299.** This laser printer meets the high

demands of small businesses and home offices with features such as 600-dpi resolution, support for Adobe PostScript Level 2, and automatic-input switching between DOS/Windows machines and Macintosh networks. Memory Booster software makes good use of the printer's 3MB of RAM. Jul 95

★★★★ **LaserWriter 4/600 P5, Apple Computer, 408/996-1010, \$929.** This PostScript laser printer offers crisp 600-dpi resolution, easy setup and maintenance, and a compact design, at a price of less than \$1000. Dec 95

★★★★ **LaserWriter 16/600 PS, Apple Computer, 408/996-1010, \$2399.** If speed is what you need, this fine printer is it. The price is reasonable. Mar 95

★★ **Nikon Coolprint, Nikon Electronic Imaging, 516/547-4355, \$2350.** Color dye-sub printer is a good way to make small color proofs of digital images (only A6 paper is supported). It's fast, but print quality suffers from a low resolution and poor color matching. Sep 95

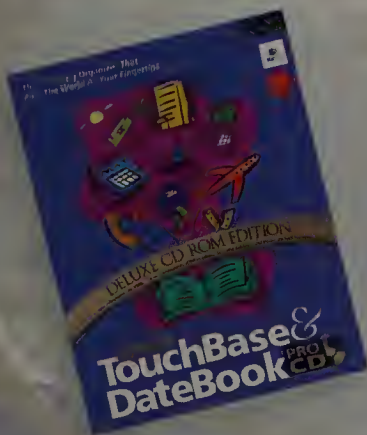
★★★★ **Phaser 140, Tektronix, 503/627-7111, \$1695.** If you're looking for a capable color printer for a small workgroup, this ink-jet is a great choice. It provides only 17 resident fonts, however. Apr 95

★★★★ **Pictura 310, Fargo Electronics, 612/941-9470, \$4995; optional Adobe Level 2 PostScript package \$795.** This tabloid-size thermal-wax and dye-sub printer is affordable and produces acceptable print quality, but it's not to dye for. Its color-matching capabilities don't measure up to those of its competitors. Jul 95

★★★★ **PrimeraPro, Fargo Electronics, 612/941-9470, \$1895.** The photo-realistic output of this thermal-wax and dye-sublimation printer beats that of any other *continues*

Contacts, schedules, to-do lists, hotels, 747s and ab crunches.

Don't go anywhere without new Now TouchBase & DateBook Pro™ CD. It's a powerful contact and schedule manager designed specifically for people who travel. Plus it has tons of information that'll help you find everything you need virtually anywhere you go. From ATMs to museums to gyms. All of which you can print out in popular organizer formats or copy to your PowerBook. Call **1-800-439-5458** today and ask for Now TouchBase & DateBook Pro CD. You'll never sweat travel again.



Now Software

The Now Software Logo, "It's About Time," Now TouchBase & DateBook Pro are trademarks of Now Software, Inc. All other trademarks are the property of their respective owners.



period of at least 6 years for a telephone connection. It's about time. Workers are 25% more likely to suffer a back injury on

Circle 39 on reader service card

Rental Car

Star Ratings

printer in the price range. But with expensive consumables and slow print time, it's best suited for routine thermal-wax use and occasional dye-sub work. Jan 95

★★★★ **StyleWriter 1200, Apple Computer, 408/996-1010, \$269.** Newest model of Apple's inexpensive ink-jet printer offers improved print quality, better halftones, tiled layouts, and four new fonts. Sep 95

★★★★ **Stylus Color, Epson America, 310/782-0770, \$699.** This color ink-jet printer is no speed demon at 720-dpi resolution, you need special paper for hi-res output, and it offers no color correction. But who cares? The print quality is superb and the price is reasonable. May 95

★★★★ **Typhoon 8, Dataproducts, 818/887-8000, \$3100 (600 dpi, 4MB of RAM); \$5199 (1200 dpi, 36MB of RAM).** This workgroup printer delivers impressive output at 1200 dpi, but its 600-dpi output and printing speed are nothing to write home about. Dec 95

★★ **Xerox 4510ps, Xerox, 800/349-3769, \$1745.** Although its driver offers nice features like thumb-nail pages, watermarks, and smart underlining, this workgroup printer's speed and output quality don't make the grade. Dec 95

SCANNERS

★★★★ **Fujitsu ScanPartner Jr., Fujitsu Computer Products of America, 408/432-6333, \$499.** Compact scanner with good OCR software makes converting hard-copy documents to editable text a snap. It's an economical and fuss-free scanning solution, but its page-feeder doesn't offer the flexibility of a flatbed scanner. Jul 95

★★★★ **HP ScanJet 3c, Hewlett-Packard, 208/323-2551, \$1179.** Higher resolution (600 dpi) and a broader dynamic range (30 bits) distinguish this color scanner from its predecessor. The only number that didn't go up is the price. Oct 95

★★ **Pro Imager 4000, PixelCraft, 510/562-2480, \$2995.** This midrange scanner delivers excellent highlight detail but produces a lot of noise in shadow areas. It doesn't measure up to similarly priced competitors in speed or image quality. Jun 95

★★★★ **Pro Imager 8000, PixelCraft, 510/562-2480, \$12,995.** Demanding prepress users will like this scanner's tonal sensitivity, high resolution, large image area, and impressive speed. Although its color-adjustment software needs work, this is a superb scanner. Jun 95

★★★ **Reli 4830T, Relisys, 408/945-9000, \$1699.** The good: high-quality scans, midrange price; lots of bundled software. The bad: slow performance, quirky scanning software. The upshot: If you can live with the cons, this scanner is a bargain. Jun 95

★★★★ **SprintScan 35, Polaroid, 617/386-2000, \$2495.** Compact, efficient scanner offers a cost-effective way to transfer images from 35mm slides or negatives to a Mac. Jun 95

★★★ **Vista-S8, Umax Technologies, 510/651-8883, \$995 (LE+); \$1095 (Pro+).** This 24-bit color flatbed scanner has a lot of useful features for its low price, including crisp line-art scans and speedy previews. It's a bargain if you can overlook its slow OCR scanning and some scanning-software bugs. Jul 95

SYSTEMS/STORAGE

★★★★ **Brainstorm Accelerator for the Macintosh SE, Brainstorm Products, 415/988-2900, \$199.** Your SE will never be a Power Mac or even a IIx, but

if your budget won't buy a new Mac, you can't do better than this accelerator. Mar 95

★★★★ **Envoy Wireless Communicator, Motorola, 800/894-7353, \$1000 to \$1500.** With its intelligent mail agents and well-integrated RadioMail software, this Magic Cap-based PDA was our reviewers' first choice for sending and receiving E-mail. Aug 95

★★★★ **EZ135, SyQuest Technology, 510/226-4000, \$249.** It's not glamorous, but this low-cost removable-cartridge drive offers speedy performance and decent storage capacity. Dec 95

★★★★ **Joule System, La Cie, 503/520-9000, Price varies by component.** Plug-and-play tower lets you stack drives—hard drives, removable media, and others—atop a base unit, making it easy to buy extra storage or swap modules with other Joule towers. Joule drive prices are generally slightly higher than for comparable drives. Feb 95

★★★★ **Marco Wireless Communicator, Motorola, 800/894-7353, \$900 to \$1400.** This Newton OS-based PDA includes a radio modem. The RadioMail service offers E-mail, paging, outgoing faxes, and a news service, but it's pricey. Aug 95

★★★★ **Master CD Pro, MicroNet Technology, 714/453-6000, \$4995.** With support for multiple formats, this quad-speed, multisession, recordable CD-ROM drive is a good tool for professional CD production. It ain't cheap, though. Aug 95

★★★★ **MessagePad 120, Apple Computer, 408/996-1010, \$599, 2MB model \$699.** Apple's PDA offers about three times the storage space of the other PDAs tested, and its design is great, but handwriting recognition still needs work. With support for vertical applications, it's good for specialized tasks like medical work. Aug 95

★★★★ **Power 100, Power Computing, 512/258-1350, \$2599 (base model).** The first Macintosh clone offers all the power of a Macintosh 8100/100 for about \$700 less. It offers the speed, expandability, functionality, and compatibility Macintosh users expect, with the customer support and prices we've wanted for so long. Aug 95

★★★★ **Power Macintosh 7500/100, Apple Computer, 408/996-1010, \$3159.** The new Power Mac provides just the right mix of speed and features, with room to grow. Strong video, sound, and networking capabilities make it an excellent machine for Internet browsing and publishing. Dec 95

★★★★ **Power Macintosh 8100/110, Apple Computer, 408/996-1010, \$6379.** High-end users who have invested heavily in NuBus cards can protect their investment with this top-of-the-line Power Mac. Mar 95

★★★★ **Power Macintosh 9500/132, Apple Computer, 408/996-1010, \$5799.** If you need speed, expansion, and a massive amount of memory, this is the Mac for you. But with no built-in video, the limited availability of PCI cards, and RAM slots that are hard to reach, this one's a poor choice for general use. Oct 95

★★ **RCD-1000, Pinnacle Micro, 714/727-3300, \$1695.** The software for this CD-Recordable drive is easy to use, but it's too unreliable to use as a day-to-day backup system. Jun 95

★★★★ **SledgeHammer8000FT, FWB, 415/325-4392, \$23,599.** This fault-tolerant Level 5 RAID array will help you maintain constant access to your stored information. Our reviewer couldn't tolerate a few of its faults, however, including its lack of support for RAID 3. Sep 95

★★★★ **Sony Magic Link, Sony, 800/571-7669, \$699.95.** Using this PDA for short E-mail messages, phone calls, and appointment scheduling is a breeze, but only a

handful of applications have been developed for it so far. Although the Personal Link messaging service is relatively inexpensive, its Telescript support is limited to other devices that use the Magic Cap OS. Aug 95

★★★★ **Zip Drive, Iomega, 801/778-1000, \$199.95; 100MB cartridge \$19.95.** Weighing in at about a pound, this external drive combines speedy performance, convenience, and economy in an attractive package. It uses 100MB cartridges the size of a floppy disk, and boasts near hard-drive speeds. What's not to like? Jul 95

VIDEO/DISPLAY

★★★★ **Apple Multiple Scan 15 Display, Apple Computer, 408/996-1010, \$509.** The tridot tube of this 15-inch monitor provides a sharp and accurate image, but reflects some glare. The built-in stereo speakers reproduce sound nicely. Feb 95

★★★ **EAsycolor 24/1360, EA Research, 510/867-0967, \$1699.** Video board offers Photoshop CMYK-mode acceleration and high-resolution support for multisynchronous monitors. Its software is minimal and its QuickDraw acceleration only adequate, but it's an affordable solution. Aug 95

★★★★ **Multiscan 15sf, Sony Computer Peripheral Products, 408/432-0190, \$569.95.** Trinitron monitor has a flat screen that displays sharp, bright, and accurate images. With good antiglare coating and adjustable image tilt, it's worth looking at. Feb 95

★★★★ **MultiSync 3V Monitor, NEC Technologies, 708/860-9500, \$495.** With a bright display and great image quality, this monitor delivers a fine picture at a moderate price. Feb 95

★★★ **PaintBoard Prism GT, RasterOps, 408/562-4200, \$999.** If you want QuickDraw acceleration and plentiful software options, this video board is a good choice, but it doesn't offer Photoshop acceleration. Aug 95

★★★★ **Panelight ZX, Panelight Display Systems, 415/772-5800, \$3995 to \$4695.** LCD panel offers vivid images at a comparatively low price. It's a great choice for presenters. Mar 95

★★★ **QA-1500, Sharp Electronics Corporation, 201/529-8731, \$5795.** LCD panel's display is crisp and flicker-free, but placing a presentation on its PC Card is cumbersome. Cheaper products are available. May 95

★★★★ **QuickCam, Connectix Corp., 415/571-5100, \$149.95.** For as little as \$99 (street price), this tiny, fun, easy-to-use, digital video camera lets users experiment with video input for making QuickTime movies or capturing still images. Mar 95

★★★★ **SpigotPower AV, Radius, 408/541-6100, \$999.** Make full-screen, 30-fps movies with this first-rate video-compression-and-decompression board and accompanying JPEG software. Jun 95

★★★★ **Targa 2000 1.2, Truevision, 408/562-4200, \$5495.** Digital video board provides excellent image quality and fully synced 16-bit audio. A bit expensive, but a good choice for video professionals. Dec 95

★★★★ **Thunder IV GX 1360, Radius, 408/434-1010, \$2999.** With its impressive QuickDraw and Photoshop acceleration and versatile software, this video board was our reviewer's first choice. It's more expensive than the competition, however. Aug 95

★★★ **VideoDirector 1.5, Gold Disk, 408/782-0200, \$199.95.** Low-end video-editing system lets you log, edit, and organize videotape footage, copying selections from a source deck to a record deck. A good choice for nonprofessionals. Jun 95

Streetwise Shopper

SPECIAL HARDWARE AND SOFTWARE BUYING OPPORTUNITIES

Selected and edited by Charles Barrett

The following listings include both time-sensitive promotions and open-ended offers being sponsored by Macintosh vendors and their resellers. Each listing indicates which products have been awarded a star rating in *Macworld's Reviews* (products rated ★★ or lower are not eligible for inclusion), have been selected as an **Editors' Choice**, or have won a **World-Class** award. In some cases, the editorial evaluation quoted is for an earlier product version. The Ⓢ symbol indicates that the product is Power Mac related. Except where otherwise indicated, prices given are suggested retail prices.

When placing an order, please mention that you saw the offer in *Macworld*. Should any problems arise, contact the *Streetwise Shopper* editor by fax (415/442-0766), phone (415/978-3241), or mail (*Macworld*, 501 Second St., San Francisco, CA 94107).

Vendors and resellers desiring to have products and services included in this section are encouraged to contact the *Streetwise Shopper* editor with particulars.

BUNDLES

Apple Internet Connection Kit Claris is offering this \$59 kit that includes Ⓢ Claris EMailer Lite (Dec 95 ★★ for Claris EMailer 1.0), Netscape Communications' Netscape Navigator, Progressive Networks' Real Audio Player, and the Apple Internet Dialer for hooking up to qualified Internet service providers. Call 800/950-5382 for more information.

Kodak Products + Ⓢ Cumulus Network Image Database 2.5 Kodak is including a special two-client version of Canto Software's image-database and -cataloging program with a variety of products, including its CD writers, automated disk libraries, and Build-It software. Cumulus compiles and searches catalogs of images, sounds, QuickTime movies, and other multimedia files. Call 800/242-2424 for more information.

LindPowerCenter 500 + DC Adapter 500 + Battery Utilities 500 Lind Electronics is offering a bundle for the PowerBook 500 series, consisting of its \$199.95 PowerCenter 500 (which provides multiple power functions and battery maintenance), \$79.95 DC Adapter 500, and \$29.95 Battery Utilities 500 maintenance software. Available for \$199.95 by calling 800/897-8994.

Mac Desktop Music Kit Midiman is offering a bundle of music teaching, accompaniment, and sequencing software products that consists of PG Music's Band in a Box, Mibac Music's Music Lessons Lite, and Passport Designs' Trax program. The basic \$139.95 kit includes a MiniMacman MIDI interface; the \$159.95 kit features a Macman 1-in/3-out MIDI interface. Call 818/449-8838 for more information.

Ⓢ **Nisus Writer 4.1 + MailKeeper 1.0.2** Nisus Software is including a free copy of its \$39 MailKeeper software with its \$319 word processor (Mar 95 ★★ for 680X0 version 4.0), which now includes HTML tools and translators

for popular formats. MailKeeper tracks E-mail addresses and messages, along with Internet URLs and free-form notes. The bundle's estimated street price is \$130. Call 800/890-3030 for more information. *Offer good through at least 12/31/95.*

Ⓢ **Open Sesame 1.1 + Mangia + ZipZapMap + Scrabble** Charles River Analytics is including the following software free of charge with its \$99 Finder-automation utility (May 94 ★★★ for Open Sesame 1.02): Upstill Software's \$49.95 Mangia electronic cookbook, National Geographic's \$39.95 ZipZapMap geography game, and MacPlay's \$22 Scrabble vocabulary game. Available for \$39.95 by calling 800/913-3535, ext. 526. *Offer expires 2/28/96.*

Ⓢ **Ray Dream Studio** Ray Dream has combined four 3-D and animation tools in this new \$499 cross-platform suite: Ray Dream Designer 4.0 (Mar 95 ★★★ for version 3.1.1), its \$349 3-D graphics program; a keyframe-based animator that defines events for each object in a scene or frame; a collection of more than 500 editable textured models in Designer format; and a portfolio of plug-in extensions, plus a tool kit for creating custom extensions. Call 415/960-0768 for more information.

Ⓢ **Strata Virtual Studio** Strata has formed an alliance with Avid Technology and Allegiant Technologies to offer this \$2095 suite of multimedia-development tools consisting of Strata's \$1495 high-end 3-D design application (Mar 94 ★★★★★ for StudioPro 1.0), your choice of version 1.5.2 or, for full QuickDraw 3D support, version 1.75; Strata's \$695 QuickTime paint tool (Sep 95 ★★★★★ for MediaPaint 1.0); Allegiant's \$695 SuperCard 2.5 authoring system (Feb 95 ★★★★★ for version 1.7.1); Avid VideoShop 3.0, a \$395 QuickTime video-editing program (Feb 94 ★★ for version 2.0); Avid Elastic Reality 1.2, a \$349 QuickTime morphing and warping application; and Avid TransJammer Volume I, a \$99.95 package for producing over 100 plug-in transitional effects for Avid VideoShop and Adobe Premiere. Call 800/787-2823 for more information.

SIDEGRADES/UPGRADES

Ⓢ **Data Desk 5.0** Data Description is offering a \$150 upgrade of its \$625 data-analysis package to registered Data Desk users for \$115. In addition, a \$99 nontransferrable license is available to full-time college students. Call 800/573-5121 for more information. *Offer expires 12/31/95.*

Drive7 3.6 Casa Blanca Works is offering this \$89.95 disk-management package to registered users of competitive formatters or of Drive 7 Lite for \$30. This new version adds support for Panasonic PD phase-change CD-ROM and optical drive and Iomega's Jaz drive, as well as for new SCSI routines in the Power Mac 7200, 7500, and 8500. Call 415/461-2249 for more information. *Offer expires 12/15/95.*

Ⓢ **Virex 5.5** Datawatch is offering this \$99.95 virus-detection utility (May 95 ★★★★★ for version 5.5.1) for \$39.95

to registered owners of other virus-protection products. Call 508/988-9700 for more information.

SPECIAL DISCOUNTS/REBATES/FREE TRIALS & OFFERS

Apple Workgroup Server; Internet Server Apple Computer is providing software tools at no additional charge to customers who purchase a Workgroup Server or Internet Server after 8/31/95. The workgroup package includes Datawatch's netOctopus for network workstation management and \$99.95 Virex virus-detection utility, AG Group's \$795 Skyline/Satellite for traffic archiving and analysis, and a limited edition of 4-Sight Fax 2.5 network communication software. AppleShare server configurations also include Santorini Consulting and Design's \$695 Server Management Bundle, a collection of AppleShare utilities on CD-ROM. The Internet package—in addition to a Workgroup Server, StarNine Technologies' WebStar, and Netscape Communications' Netscape Navigator—includes Adobe PageMill for Web-page authoring. Call 408/862-3385 for more information.

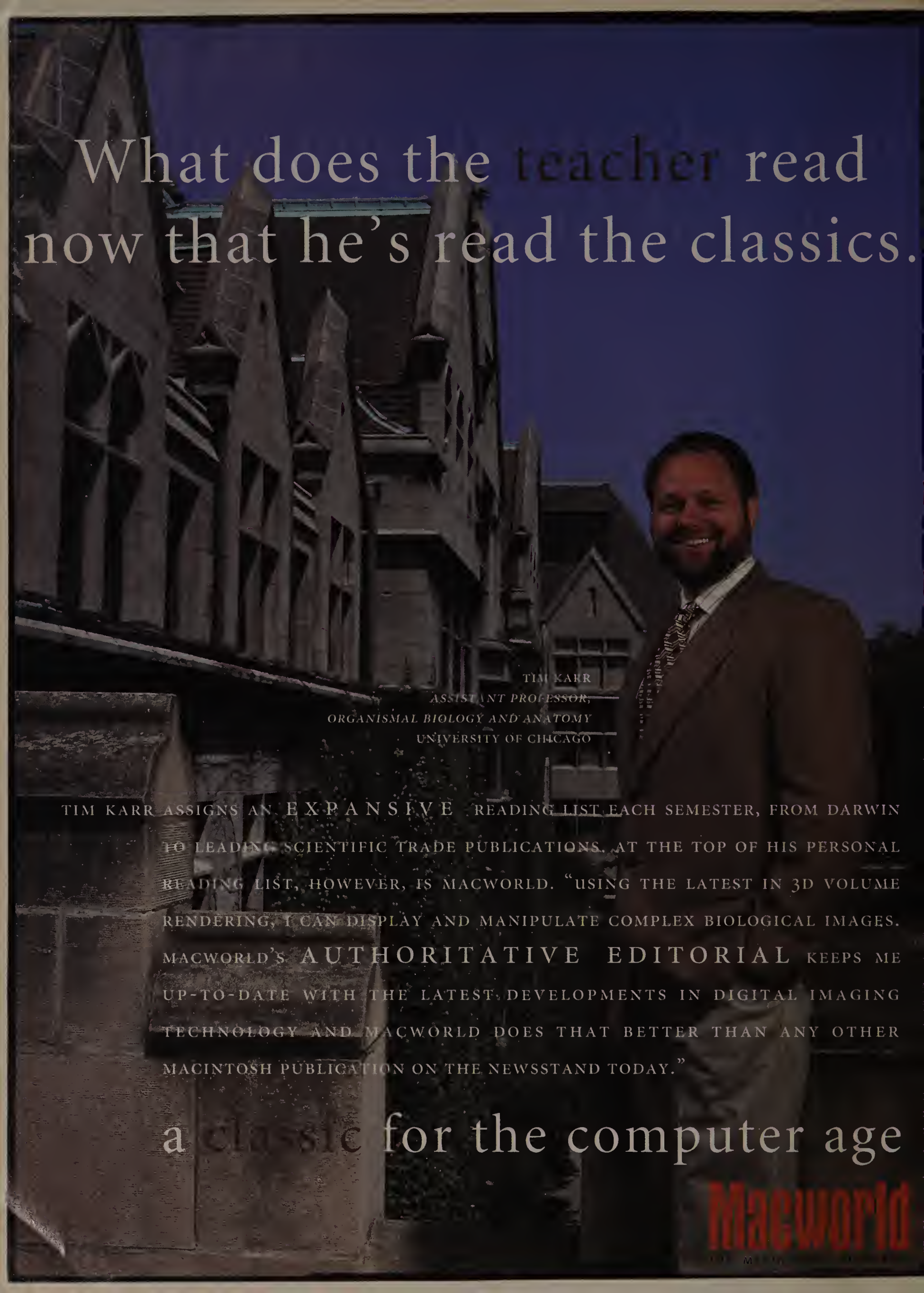
microLaser GX Drivers Texas Instruments is offering users who contact its bulletin board system (817/774-6809) or America Online forum (keyword TI) free Macintosh printer drivers for microLaser 600- and microLaser Pro-series printers operating with QuickDraw GX. These drivers are also available on TI's World Wide Web site (<http://www.ti.com>).

Netscape Navigator 2.0 Netscape Communications is offering a 90-day free evaluation of this new upgrade of its \$49 Web browser, which adds support for live online applications and complete news and E-mail capabilities with address books. Available at <http://home.netscape.com>.

Now Contact Link to PaperPort Now Software is offering this software, which provides an easy way to file and retrieve paper documents by attaching them to contacts within its \$99 Now Up-to-Date and Contact 3.5 bundle (Nov 95 ★★★★★). Support is included in the 3.5.1 update, free of charge to version 3.5 users and to customers of Visioneer's \$399 PaperPort desktop scanner (May 95 ★★★★★). Call Now Software (800/237-2078) or Visioneer (800/787-7007, ext. 400) for more information.

Oracle Power Objects 1.0 A fully functional, 90-day trial version of this \$395 graphical, object-based development tool for creating cross-platform client-server applications is available as a free download on CompuServe (GO ORACLE) or via Oracle's Internet-based World Wide Web server (<http://www.oracle.com>). The standard version is being offered by Claris for \$99. Call 800/950-5382 for more information.

PowerTalk Gateways Apple Computer is inviting System 7.5 users to download StarNine Technologies' free E-mail utility from Apple's World Wide Web site (<http://www.info.apple.com/dev/evangelism/powertalk/powertalk.html>). These new PowerTalk additions extend communication and collaboration features already present in System 7.5. **m**

A man with a beard, wearing a suit and tie, stands smiling in front of a large, ornate building with many windows. The scene is set at dusk or night, with a dark blue sky. The building has a complex facade with many windows and architectural details.

What does the teacher read now that he's read the classics.

TIM KARR
ASSISTANT PROFESSOR,
ORGANISMAL BIOLOGY AND ANATOMY
UNIVERSITY OF CHICAGO

TIM KARR ASSIGNS AN EXPANSIVE READING LIST EACH SEMESTER, FROM DARWIN TO LEADING SCIENTIFIC TRADE PUBLICATIONS. AT THE TOP OF HIS PERSONAL READING LIST, HOWEVER, IS MACWORLD. "USING THE LATEST IN 3D VOLUME RENDERING, I CAN DISPLAY AND MANIPULATE COMPLEX BIOLOGICAL IMAGES. MACWORLD'S AUTHORITATIVE EDITORIAL KEEPS ME UP-TO-DATE WITH THE LATEST DEVELOPMENTS IN DIGITAL IMAGING TECHNOLOGY AND MACWORLD DOES THAT BETTER THAN ANY OTHER MACINTOSH PUBLICATION ON THE NEWSSTAND TODAY."

a classic for the computer age

Macworld
OF MICHIGAN

Stand out from the crowd

Macworld

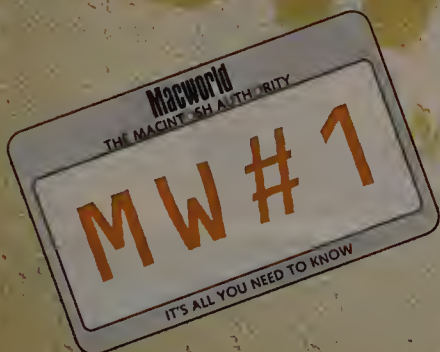
pen

Alas, we all have to revert to pen and paper sometimes so you might as well use one of our snazzy Macworld pens.

**Call now
1-800-257-0374**

license plate holder

Get that dealership bracket off of your plate and slap on our cool, new, chrome Macworld plate holder.



baseball cap

You've got Macworld in your head, now put Macworld on your head. One size fits all. 100% cotton.



graphics T

Macworld's famous "Picasso shirt" previously only sold at Macworld Expo now available to you in the comfort of your own home. In xxl, xl, l, m & s. 100% cotton.



kids T

Isn't it just the cutest thing? Well it will be when it's draped over your kid. Kid's sizes s, m & l. 100% cotton.



giant latte mug

Attention coffee achievers. Save yourself trips to the coffee pot with our mondo Macworld mug.



denim shirt

Formerly reserved for Macworld employees only and the talk of Macworld Expo 1995, now it can be yours. In xl, l, m & s.

Call in your order to 1.800.257.0374

	quant.	size	price	subtotal (price x quantity)
Latté mug	_____	_____	\$9.99	_____
Pen	_____	_____	\$11.99	_____
Denim shirt	_____	_____	\$39.99	_____
Graphics t-shirt	_____	_____	\$11.99	_____
Kids t-shirt	_____	_____	\$9.99	_____
Baseball cap	_____	_____	\$12.99	_____
License holder	_____	_____	\$6.99	_____
			Subtotal	_____
Please add appropriate sales tax for CA, IL, NJ, & MA			Sales Tax	_____
			Shipping	_____
			Total	_____

or order by mail

U.S. Shipping

Merchandise value	Shipping cost
\$0-9.99	\$4.99
\$10-19.99	\$5.99
\$20-29.99	\$6.99
\$30-49.99	\$7.99
over \$50	\$8.99

Two day UPS add \$3

Please allow 2 to 4 weeks for delivery

name _____

address _____

city _____

state _____ zip _____

phone # _____

credit card type _____

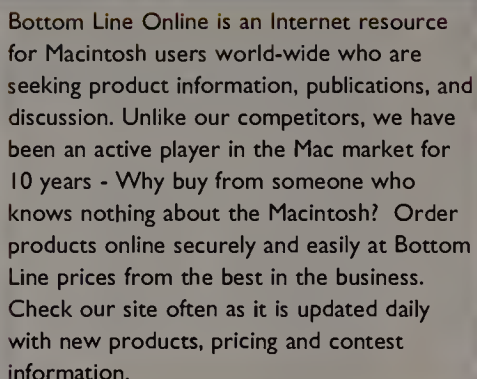
credit card # _____

expiration date _____

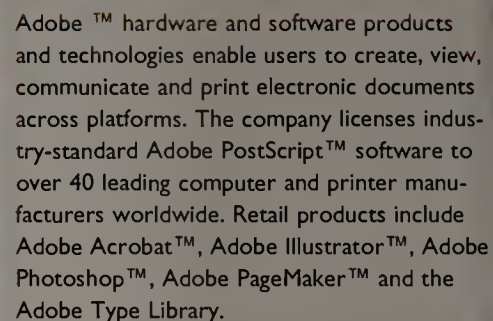
or send check or money order to
Macworld Merchandise, 501 Second Street San Francisco, CA 94107

YOUR MARKET RESOURCE TO THE WORLD WIDE WEB

Adobe Systems

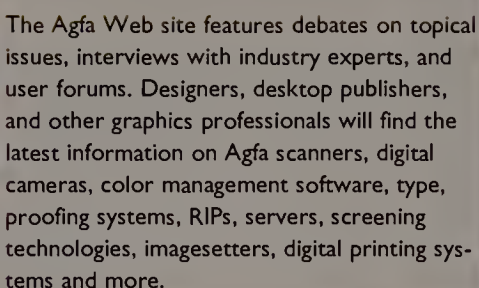


<http://www.blo1.com/mw.html>

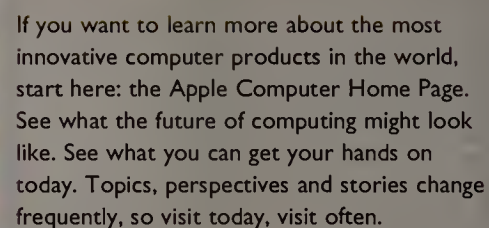


<http://www.adobe.com/>

Apple Computer, Inc.

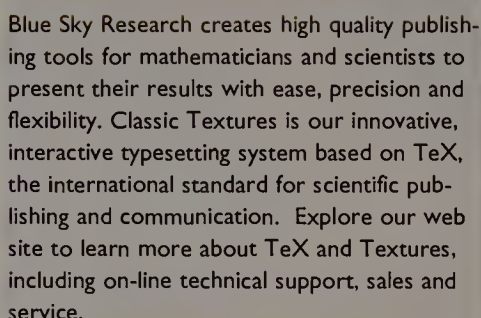


<http://www.agfahome.com/>

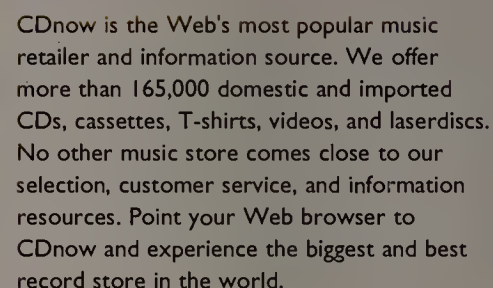


http://www.apple.com

CD-Now

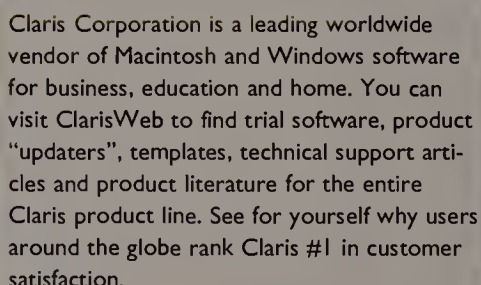


<http://www.bluesky.com/>

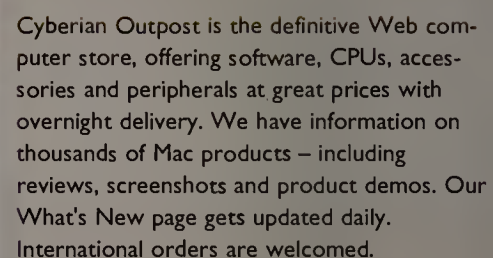


<http://cdnow.com/macworld>

Cyberian Outpost



<http://www.claris.com/mw>



<http://www.cybout.com/mw.html>

YOUR MARKET RESOURCE TO THE WORLD WIDE WEB

800-572-4305
30 DAY MONEY-BACK
SHIPPING
DRIVES FOR
8 YEARS

1-800-372-0006 Int'l (612) 937-9004 • Fax (612) 937-6300
New Haven: M-F 6:00-6PM SAT 10:00-3PM CST
Email: info@newhaven.org

- 1986
- 1987
- 1988
- 1989
- 1990
- 1991
- 1992

10 DAY MONEY BACK - SHIPPING DRIVES FOR 9 YEARS! DISCOVER VISA. MASTERCARD. Compare the convenience we use at any computer and you'll see our quality & better. We use only the best materials and cabin. Grumman, QinetiQ, Corp. and User P.O.s accepted.

[illegible]

TYPEFAMER

...the ultimate font tool for the Macintosh.

INTRO FEATURES FAQ DEMO SUPPORT

IDG
INTERNATIONAL DATA GROUP

Welcome to the IDO Home Page! International Data Group (IDG) is the world's leading provider of information services for the information technology industry. Our unique portfolio of publishing, research, and exposition resources helps IT vendors connect with IT buyers anywhere in the world.



CD PC Publications



Books



Research

Events

[illegible][illegible]

net jet

we're on line

you're on-line

we cross the line

the bottom line

we draw the lines

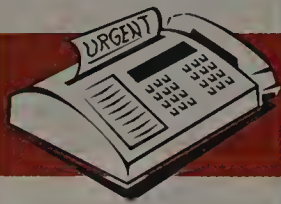
drop us a line

strategies communications commerce for the net age

163D

1-800-234-0455

Macworld



FAX

ON DEMAND

ELECTRONIC PRODUCT INFORMATION

Need **free** product information fast?

Try Macworld's **free** Fax On Demand program.

You need product information fast. Macworld Fax On Demand offers split-second turnaround on product information that will assist your important buying decisions.

Simply call the toll-free Macworld Fax On Demand number, **1-800-234-0455**, enter an extension from one of the companies listed below, enter your fax number, hang up, and product literature will be faxed out to you instantly. The Macworld Fax On Demand hotline is available 24 hours a day, seven days a week, 365 days a year.

The waiting is over. Call Macworld Fax On Demand today!

E X T E N S I O N S			
Charismac x674	DayStar x665	Kensington x664	PhotoDisc x663
Computer Discount Warehouse x675	Day-Timer Technologies x677	LaCie x678	Touché x668
Connectix x671	Deneba Software x676	MacPlay x661	World Software x669
	Fractal Design x679	MetaTools x662	
		Microfield x667	

Macworld
THE MACINTOSH® AUTHORITY

Say you saw it in Macworld. To purchase products advertised in this issue call the phone numbers below or use the reader service number for our FastFacts Product Information Card located after the product index.

Page No.	Advertiser	Reader Svc. No.	Phone	Page No.	Advertiser	Reader Svc. No.	Phone	Page No.	Advertiser	Reader Svc. No.	Phone
16,17	Adobe - PhotoShop	251	800/521-1976	129	Farallon Computing	—	—	IFC,1	Microsoft - Word	—	800/531-6748
50,51	Adobe - Illustrator	252	800/521-1976	126	Fractal Design	—	800/647-7443	149	Microtek Lab, Inc.	105	800/654-4160
60	AEC Software	203	800/450-1982					IBC	NEC Technologies	16	800/NEC-INFO
8	Agio	—	800/688-2446	124	Global Village	—	800/736-4821	92,93	Novell, Inc.	—	—
174, 175	Alliance Peripheral Systems	62	800/874-1428	62	Graphsoft	46	410/290-5114	159	Now Software	38	800/274-2899
74	ALPS Electric (USA), Inc.	22	—					161	Now Software	39	800/544-2686
141,142	America OnLine	—	800/827-6364	56	Hewlett Packard - ScanJet line	—	—	64	Number Nine Visual Technology	53	800/438-6463
150,151	American Power Conversion	72	800/788-2208								
6	Anthro	—	800/325-3841	160	Impossible Software	10	800/470-4801	12	Orange Micro	33	714/779-2772
16	Apple Software-System 7.5	—	—	130	Inspiration Software	—	800/877-4292				
131	Apple Software-Internet Kit	—	—	137	Intuit - Quicken	—	800/781-6999	38	Performance Systems International	95	800/82PSI82
								72	Polaroid	295	800/816-2611
194,195	BottomLine Distribution/ DGR Technologies	63	800/990-5791	169	J&R Computerworld	282	800/221-8180	109-111	Power Computing Corporation	161	800/410-7693
								179	ProDirect	135	800/524-9952
9	Caere Corporation	69	800/535-SCAN	BC	Kensington Microware Ltd.	1	800/535-4242				
66	Canon, Inc.	—	—	11	Kingston Technology	201	800/435-0677	43	QMS	288	800/392-7559
182-185	ClubMac	96	800/CLUB MAC								
146	Comnet Expo	—	800/545-EXPO	200	L.A.Trade	—	800/433-3726	36	Seiko Instruments	93	800/888-0817
187-189	Computer Discount Warehouse	2	800/861-4CDW	13-15	LaCie	52	800/999-1182	47	Sharp Electronics	44	800/BE-SHARP
								145	Sony Corporation	—	—
42	Connectix - RAM Doubler	192	800/839-3629	202,203	Mac Bargains	70	800/619-9091	28	Specular International	41	800/433-7732
44	Connectix - Speed Doubler	193	800/839-3629	180	Mac Zone	71	800/436-0606	158	SPSS INC.	85	800/457-8287
46	Connectix - QuickCAM	191	800/839-3629	181	Mac Zone	71	800/436-0606	91	Statsoft	99	918/583-4149
58	Corel Corporation	78	800/836-3729	115	MacAcademy	106	800/527-1914				
196,197	CRA Systems Inc.	20	800/375-9000	172,173	MacConnection	—	800/800-3333	78,79	Texas Instruments	266	800/527-3500
				170	MacMall	131	800/222-2808	8	Toyota Motor Sales	—	800/GO-TOYOTA
40	Dantz Development	26	800/225-4880	186	MacMarket	258	800/223-4622				
20	DayStar Digital	7	800/532-7853	125	MacPlay	159	800/4-MacPlay	70	Umax	196	800/859-2728
24	Deneba Software	57	800/733-6322	192,193	MacWarehouse	150	800/255-6227				
25	Deneba Software	—	800/733-6322	152	Macworld Expo	—	—	23	Ventana Media	128	800/743-5369
198	DigiCore	269	800/858-4622	164	Macworld Fax On Demand	—	800/645-EXPO	48	Ventana Media	129	800/743-5369
10	Digital Stock	125	800/545-4514	236	Macworld Merchandising	—	—	45	Viking Components	233	800/338-2361
201	Direct Connections	121	800/572-4305	178	MegaHaus	245	800/786-1184	76	Visioneer	18	800/787-7007
190	DirectWare	88	800/490-WARE	68	Megahertz Corporatio	56	800/LINKING				
				19	MetaTools, Inc.	5	805/566-6200	199	Westwood Computers	101	800/761-1999
239	Educorp	157	800/843-9497	22	MetaTools, Inc.	4	805/566-6200	49	Xante Corporation	112	800/926-8839
144	Engineered Software	12	910/299-4843	6	MetaTools, Inc.	6	805/566-6200				
26	Epson America	—	800/BUY-EPSON	18	Microfield Graphics	48	800/334-4922				
176,177	Express Direct	81	800/765-0020	4,5	Microsoft - Excel	—	800/531-6748				

Macworld

Product Index

A quick and easy product index from Macworld. Simply use this index to find the page or advertiser of the products which interest you. Then, use the reader service number for our FastFacts Product Information Card located on the following page.

Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.
SOFTWARE			STATISTICAL			HARD DISKS/STORAGE			TRADESHOWS/CONFERENCES		
BUSINESS			158	SPSS INC.	85	174, 175	Alliance Peripheral Systems	62	146	Comnet Expo	
60	AEC Software	203	91	Statsoft	99	194,195	BottomLine Distribution/DGR Technologies	63	152	Macworld Expo	
130	Inspiration Software	—	UTILITIES			182-185	ClubMac	96	TRAINING		
137	Intuit - Quicken	—	42	Connectix - RAM Doubler	192	201	Direct Connections	121	115	MacAcademy	100
IFC,1	Microsoft - Word	—	44	Connectix - Speed Doubler	193	11	Kingston Technology	201	MAIL ORDER		
4,5	Microsoft - Excel	—	40	Dantz Development	26	13-15	LaCie	52	174, 175	Alliance Peripheral Systems	62
159	Now Software	38	48	Ventana Media	129	179	ProDirect	135	194,195	BottomLine Distribution/DGR Technologies	63
161	Now Software	39	HARDWARE			145	Sony Corporation	—	182-185	ClubMac	96
91	Statsoft	99	BOARDS			45	Viking Components	233	187-189	Computer Discount Warehouse	2
CAD/CAM			20	DayStar Digital	7	INPUT DEVICES			198	DigiCore	269
144	Engineered Software	12	64	Number Nine Visual Technology	53	BC	Kensington Microware Ltd.	1	201	Direct Connections	121
62	Graphsoft	46	12	Orange Micro	33	68	Megahertz Corporatio	56	190	DirectWare	88
CD ROM			CD ROM			18	Microfield Graphics	48	176,177	Express Direct	81
58	Corel Corporation	78	239	Educorp	157	76	Visioneer	18	169	J&R Computerworld	282
239	Educorp	157	IBC	NEC Technologies	16	MICROPROCESSOR			200	L.A.Trade	—
8	Toyota Motor Sales	—	COMPUTER SYSTEMS			109-111	Power Computing Corporation	161	202,203	Mac Bargains	70
ENTERTAINMENT			196,197	CRA Systems Inc.	20	MISCELLANEOUS			180-181	Mac Zone	71
58	Corel Corporation	78	198	DigiCore	269	124	Global Village	—	172,173	MacConnection	—
125	MacPlay	159	176,177	Express Direct	81	NETWORKING			170	MacMall	131
FONTS			109-111	Power Computing Corporation	161	129	Farallon Computing	—	186	MacMarket	258
160	Impossible Software	10	199	Westwood Computers	101	PRINTERS			192,193	MacWarehouse	150
GRAPHICS/DTP			DIGITIZERS/SCANNERS			43	QMS	288	178	MegaHaus	245
50,51	Adobe - Illustrator	252	56	Hewlett Packard - ScanJet line	—	36	Seiko Instruments	93	179	ProDirect	135
16,17	Adobe - PhotoShop	251	149	Microtek Lab, Inc.	105	78,79	Texas Instruments	266	199	Westwood Computers	101
24	Deneba Software	57	47	Sharp Electronics	44	SECURITY			Web Watch		
25	Deneba Software	—	70	Umax	196	150,151	American Power Conversion	72	163C	A Bottom Line	
10	Digital Stock	125	DISPLAY			VIDEO			163C	Adobe Systems	
126	Fractal Design	—	196,197	CRA Systems Inc.	20	46	Connectix - QuickCAM	191	163C	Agfa	
19	MetaTools, Inc.	5	26	Epson America	—	26	Epson America	—	163C	Apple Computer, Inc.	
22	MetaTools, Inc.	4	72	Polaroid	295	ACCESSORIES			163C	Blue Sky Research	
6	MetaTools, Inc.	6	EXPANSIONS/UPGRADES			FURNITURE			163C	CD-Now	
28	Specular International	41	20	DayStar Digital	7	6	Anthro	—	163C	Clarix Corporation	
MISCELLANEOUS			200	L.A.Trade	—	MISCELLANEOUS			163C	Cyberian Outpost	
130	Inspiration Software	—	68	Megahertz Corporatio	56	74	ALPS Electric (USA), Inc.	22	163D	Direct Connections	
OCR			45	Viking Components	233	18	Microfield Graphics	48	163D	Genius T-shirts	
9	Caere Corporation	69	FURNITURE			SERVICES			163D	Image Club Graphics	
ONLINE			8	Agio	—	ON LINE			163D	Impossible Software	
131	Apple Software-Internet Kit	—	HARD DISK/STORAGE			141,142	America OnLine	—	163D	International Data Group	
16	Apple Software-System 7.5	—	178	MegaHaus	245	DIRECTORY			163D	MacLinQ	
38	Performance Systems International	95							163D	Macworld Online	
23	Ventana Media	128							163D	NetJet	
PERSONAL											
137	Intuit - Quicken	—									

TWO SIMPLE WAYS TO GET **FREE** PRODUCT INFORMATION

Macworld puts you in touch with the information you need most with two easy options:

1 Fax or mail in card DIAL 413.637.4343

Simply fill in the questionnaire, circle the reader service numbers that correspond to the vendors you would like information from, then fax your form to us at 413.637.4343 or just drop the postcard in the mail. Free product information will be sent to you directly from vendors.

2 Fax on Demand DIAL 800.234.0455

The Waiting Is Over. Macworld's Fax On Demand service offers you free product information immediately with a simple phone call. Call the Fax On Demand service at 800.243.0455, dial the vendor's extension, enter your fax number and within moments you will get free product information. This service is available 24 hours a day, 7 days a week, 365 days a year. Vendor extensions are listed in the product's ad.

READER SERVICE NUMBERS FOR ADVERTISED PRODUCTS CAN BE FOUND IN THE PRODUCT'S AD AND IN BOTH THE ADVERTISER INDEX AND PRODUCT INDEX.

Check this box to subscribe to Macworld

YOU WILL BE BILLED \$24 FOR A ONE-YEAR (12 ISSUE) SUBSCRIPTION (US ONLY). SUBSCRIPTION WILL BE SENT TO NAME AS NOTED BELOW. PLEASE CHANGE IF MAILING ADDRESS IS DIFFERENT.

Which of the following computers have you purchased within the last three years?

- ☐ 1 Apple Workgroup Servers, Mac Quadra-series, Centris-series, Laser-series, Power Mac-series
- ☐ 2 Mac Classic-series, LC-series
- ☐ 3 Mac Performa-series
- ☐ 4 Mac PowerBook-series, Duo-series
- ☐ 5 Other Macs (SE, SE/30 Plus, 512K, etc)
- ☐ 6 None above

Do you recommend, buy, specify or approve microcomputer software and/or peripherals?

☐ Yes ☐ No

If yes, please indicate for how many Macintosh personal computers you have this involvement

- ☐ 1 1-3 ☐ 5 50-99
- ☐ 2 4-9 ☐ 6 100-499
- ☐ 3 10-19 ☐ 7 500+
- ☐ 4 20-49

Do you use a Macintosh at:

- ☐ 1 Business, government
- ☐ 2 Home for education or entertainment
- ☐ 3 Home: for work at home
- ☐ 4 Home office
- ☐ 5 Educational institution
- ☐ 6 None above

Title _____

Company _____

Phone _____

Fax _____

Which of the following describes your occupation/department function?

- ☐ 1 Graphic arts, design, architecture
- ☐ 2 General office/administration, management, personnel, purchasing
- ☐ 3 Consulting
- ☐ 4 Education, training
- ☐ 5 Engineering/R&D
- ☐ 6 Sales, marketing, advertising, communications
- ☐ 7 MIS/DP
- ☐ 8 Programming/software development
- ☐ 9 Does not apply
- ☐ 10 Other (specify below) _____

What is the primary business of your company/institution?

- ☐ 1 Graphics
- ☐ 2 Aerospace
- ☐ 3 Business consultant
- ☐ 4 College/university
- ☐ 5 Elementary/high school
- ☐ 6 VAR/VAD/retail/whole sale (computer specific)
- ☐ 7 Engineering
- ☐ 8 Marketing, advertising, PR
- ☐ 9 Printing/publishing
- ☐ 10 Does not apply
- ☐ 11 Other (specify below) _____

1	2	3	4	5	156	157	158	159	160	271	272	273	274	275	486	487	488	489	490
6	7	8	9	10	161	162	163	164	165	276	277	278	279	280	491	492	493	494	495
11	12	13	14	15	166	167	168	169	170	281	282	283	284	285	496	497	498	499	500
16	17	18	19	20	171	172	173	174	175	286	287	288	289	290	501	502	503	504	505
21	22	23	24	25	176	177	178	179	180	291	292	293	294	295	506	507	508	509	510
26	27	28	29	30	181	182	183	184	185	296	297	298	299	300	511	512	513	514	515
31	32	33	34	35	186	187	188	189	190	401	402	403	404	405	516	517	518	519	520
36	37	38	39	40	191	192	193	194	195	406	407	408	409	410	521	522	523	524	525
41	42	43	44	45	196	197	198	199	200	411	412	413	414	415	526	527	528	529	530
46	47	48	49	50	201	202	203	204	205	416	417	418	419	420	531	532	533	534	535
51	52	53	54	55	206	207	208	209	210	421	422	423	424	425	536	537	538	539	540
56	57	58	59	60	211	212	213	214	215	426	427	428	429	430	541	542	543	544	545
61	62	63	64	65	216	217	218	219	220	431	432	433	434	435	546	547	548	549	550
66	67	68	69	70	221	222	223	224	225	436	437	438	439	440	551	552	553	554	555
71	72	73	74	75	226	227	228	229	230	441	442	443	444	445	556	557	558	559	560
76	77	78	79	80	231	232	233	234	235	446	447	448	449	450	561	562	563	564	565
81	82	83	84	85	236	237	238	239	240	451	452	453	454	455	566	567	568	569	570
86	87	88	89	90	241	242	243	244	245	456	457	458	459	460	571	572	573	574	575
91	92	93	94	95	246	247	248	249	250	461	462	463	464	465	576	577	578	579	580
96	97	98	99	100	251	252	253	254	255	466	467	468	469	470	581	582	583	584	585
101	102	103	104	105	256	257	258	259	260	471	472	473	474	475	586	587	588	589	590
106	107	108	109	110	261	262	263	264	265	476	477	478	479	480	591	592	593	594	595
111	112	113	114	115	266	267	268	269	270	481	482	483	484	485	596	597	598	599	600
116	117	118	119	120															
121	122	123	124	125															
126	127	128	129	130															
131	132	133	134	135															
136	137	138	139	140															
141	142	143	144	145															
146	147	148	149	150															
151	152	153	154	155															

Expires April 25, 1996 N1 Jan. 1996

Please print or type all information.

Name _____

Address _____

City _____

State _____ Zip _____

TWO SIMPLE WAYS TO GET **FREE** PRODUCT INFORMATION

Macworld puts you in touch with the information you need most with two easy options. Try our exciting new Fax On Demand Service or just fax back or mail in the reader service card. Make the call. Fax back. Mail in. Just don't miss out.



50%
TOTAL RECOVERED FIBER
10% POST-CONSUMER FIBER



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL

PERMIT NO. 215

PITTSFIELD MA

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld

READER SERVICE DEPARTMENT
PO BOX 5299
PITTSFIELD MA 01203-9906



One Of America's Largest Authorized Apple Dealers

J&R COMPUTER WORLD



Fargo FotoFUN! Digital Color Photo Printer

- Print real color photos from your computer with color and clarity as good as that of traditional snapshots
- Make your own photo postcards, up to 4" x 6"
- Create personalized photo mugs
- 110/220 volts • For Macintosh

(FAA 53002)

FARGO ELECTRONICS, INCORPORATED

\$399.99

Foto Mug Starter Kit (FAA 53052)..... **\$29.99**

Postcard Film Kit (FAA 53051)..... **\$39.99**

Print Film Kit (FAA 53050)..... **\$34.99**

Panasonic

Panasonic LF1000AB External Power Drive 4X CD-ROM Drive and Optical Drive In-One

- SCSI interface • 650MB optical disc • Cable • Software

\$649.99

(PAN LF1000AB)

Extra 650MB Optical Discs Each

(PAN LMR650A) **\$59.99**

SyQuest

SyQuest EZ135 135MB External SCSI Drive

- SCSI interface • 3.5" cartridge • 13.5ms • Fast back-up and retrieval • Includes one cartridge, SCSI cable, and software

\$239.99

(SYQ EZ135EXT)

Extra 135MB Cartridge

(SYQ 135MB) **\$19.99**

HEWLETT PACKARD Authorized Dealer

Hewlett-Packard DeskJet 855C Color Inkjet Printer

- Super-sharp 600 x 600 dpi black; 300 x 300 dpi color
- Works with PC & Macintosh systems • 7 ppm in black/3 ppm in color • HP Color RET & ColorSmart for vibrant colors
- Requires cable

\$499.99

(HP C4551A)

VISIONEER

Visioneer PaperMax™ & MaxMate™ Page Scanner & Document Management Software

- Integrated document communications solution • Scan documents into your Mac & distribute immediately by e-mail or electronic fax • Ultra-compact & simple to use

\$279.99

(VIR PAPERPORT)

UMAX The Magic of Color™

UMAX® PowerLook Pro 2 Color Scanner

- Single pass scanning • True 1200 dpi x 600 dpi color scanning • Built-in transparency adaptor • 30-bit scanning mode • Includes full version of Adobe Photoshop & Kai's Power Tools • For Macintosh

\$1999.99

(UMX PWRLOKMCPR2)

Kodak

Kodak Digital Camera 40

- Produces high-quality, low-cost pictures you can use instantly • 24-bit color and 756 x 504-pixel resolution
- Optional exposure control for tricky lighting • 4MB internal memory • PhotoEnhancer software from Picture Works
- TWIN acquire software

\$949.99

(KOD DC40)

SUPERMAC

SuperMac 17" Monitor

- .28mm dot pitch • 1024 x 768 resolution • Energy Star compliant

\$679.99

(SPM 17XL)

BEST BUY

Connectix QuickCam Digital Video Camera

- Make movies & take pictures with your Mac
- Resolution up to 320 x 240 pixels • QuickTime movie recorder & editor • Still picture capture utility
- Includes mic & camera stand

\$99.99

(CNM QUICKCAM)

Megahertz

\$50 Mail-In REBATE

Megahertz PCMCIA 28.8bps Fax/Modem

- XJACK connector eliminates cards & other connectors
- 28,000 bps data, 14,400 bps send & receive fax • For PowerBook 5300/190 series

\$249.99

AFTER REBATE (MHZ XJA2288)

MOTOROLA

\$20 Mail-In REBATE

Motorola LifeStyle 28.8 External Data/Fax Modem For Macintosh

- True V.34 technology
- Fax error correction
- Caller ID • Includes Software Ventures data/fax software

\$179.99

AFTER REBATE (MOT MACV34LIFE)

PNY

PowerMac Memory Chips for the 7200, 7500, 8500 & 9500

- 8 Meg RAM (PNY 8MEG-05) **\$399.99**
- 16 Meg RAM (PNY 16MEG-05) **\$599.99**
- 32 Meg RAM (PNY 32MEG-05) **\$1199.99**

Connectix

Apple® PowerBook® 5300 100Mhz • 8MB RAM • 500MB Hard Drive

\$2199.99

SOFTWARE

BUSINESS

Connectix RamDoublr-Mac/PowerMac (CNM RAMDOUBL-MP) \$34.95

Symantec Norton Utilities 3.1-Mac/PowerMac (SMM NORTON3.1) \$94.95

Intuit Quicken 6.0 (IUM QUICKEN6) \$49.95

Microsoft Office 4.21-Mac/PowerMac (MSM OFFICE4.21) \$449.95

Novell WordPerfect 3.5 Academic (NOM WP3.5A) \$79.95

Caere OmniPage Direct 2.0 (QQM OMNIDIRECT2) \$59.95

Que Mac Internet Starter Kit 2.0 (QQM INTERNET2) \$34.95

Apple System 7.5-Mac/PowerMac (APP M2920LL)-Floppy (APP M2925LL)-CD \$89.95

HSC KPT Vector Effects-Mac/PowerMac (HSM KPTVECTOR) \$119.95

Quark Xpress 3.3-PowerMac Only (QUM QUARKPM-C)-CD \$679.95

Edutainment

Spectrum Tetris Gold (SHI TETRISGLD-C)-CD \$24.95

Mindscape Mavis Beacon Teaches Typing (MDM MAVISTYPING) \$29.95

Corel All Movie Guide (CRB ALLMOVIE-C)-CD \$19.95

Voyager Puppet Motel by Laurie Anderson (VOM PUPPET-C)-CD \$24.95

Microsoft Encarta '95 (MSM ENCARTA95-C)-CD \$34.95

Lucas Film Dark Forces (LFM DARKFORCE-C)-CD \$49.95

Discovery Nile Passage to Egypt (DCA NILE-C)-CD \$29.95

GT Interactive Doom 2 (GTA DOOM2)-Floppy (GTA DOOM2-C)-CD \$44.95

Maxis SIMCity 2000 (MM SIMCITY2K) \$39.95

Broderbund Myst (BRM MYST-C)-CD \$47.95

To Order Toll Free and Receive a Free Catalogue

800-221-8180

24 Hours A Day, 7 Days A Week, Anywhere In The USA

MAIL ORDERS: J&R Computer World Dept. MW0196
59-50 Queens Midtown Expressway • Maspeth, Queens NY 11378
CALL 1-800-221-8180 for shipping information. DO NOT SEND CASH.
FAX us at: 1-800-232-4432

Not responsible for typographical or pictorial errors. Some quantities may be limited. All merchandise brand new, factory fresh and 100% guaranteed!



Circle 282 on reader service card

J&R COMPUTER WORLD

Apple® PowerBook® 5300 100Mhz • 8MB RAM • 500MB Hard Drive

\$2199.99

Apple® Power Macintosh® 8500 • 120Mhz • 2 Gig Hard Drive • 16MB RAM • Quad Speed CD-ROM

\$4499.99

Call Now and Order 1-800-221-8180

The Mall With It All!

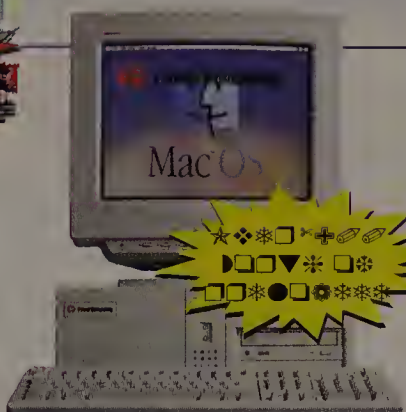
Call 1-800-222-2808 for your **FREE** Catalog
 > Filled w/Hundreds of Mac™ Bargains

MacMall

More Hardware, More Software...

PowerComputing

- > 8 or 16MB RAM (Expandable to 200MB)
- > 256K Level 2 Cache
- > 3 NuBus™ Slots, Built in Ethernet
- > High performance video card with 2MB VRAM (#74203, #74976, #74979, #7498 Only)
- > Includes Keyboard and ADB Mouse



Power 100
 8MB of RAM
 365MB Hard Drive
\$1649 #74201
 Monitor not included.



Power 100
 8MB of RAM
 850MB Hard Drive
 Quad Speed CD-ROM Drive
\$2149 #74202
 Monitor not included.



Power 100
 16MB of RAM
 1000MB Hard Drive
 Quad Speed CD-ROM Drive
 Hi-Performance Video Card/2MB VRAM
\$2949 #74203
 Monitor not included.



Power 100
 Same Specs as Above w/Tower Case
\$3049 #74976



Power 120
 8MB of RAM
 365MB Hard Drive
\$1999 #74977
 Monitor not included.

Power 120
 8MB of RAM
 850MB Hard Drive
 Quad Speed CD-ROM Drive
\$2499 #74978
 Monitor not included.

Power 120
 16MB of RAM
 1000MB Hard Drive
 Quad Speed CD-ROM Drive
 Hi-Performance Video Card/2MB VRAM
\$3249 #74979
 Monitor not included.

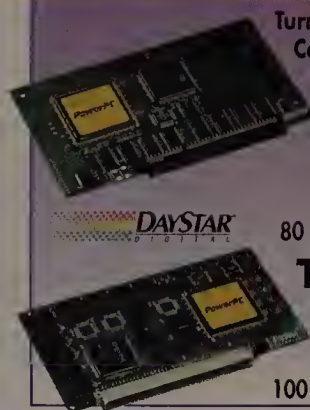
Power 120
 Same Specs as Above w/Tower Case
\$3349 #74981

2MB Video Card High Performance \$299⁹⁹ #75554

4MB Video Card High Performance \$499⁹⁹ #75555

Daystar Digital

PowerPro® 601



Turn your Macintosh Quadra® 650, 700, 800, 900, 950 or Centris 650 series into a Power Mac™1. **Only \$100.**
 faster than Apple® Power Macintosh® #100.

> Allows users to install up to 128 MB of additional memory, available to either PowerPC™ or 68040 modes.

100MHz PowerPro™ 601 w/o RAM Expansion **\$1299⁹⁹** #67667

80 MHz PowerPro 601 w/RAM Expansion **\$1499⁹⁹** #68758

Turbo™ 601 Turn your Macintosh® IIfx, IISI, IIVx, IIVI & Performa® 600 series into a Power Mac™

66MHz Turbo™ 601 for IIfx **\$869⁹⁹** #67670
 100 MHz Turbo 601 for IISI **\$1299⁹⁹** #71659

Portrait Display Labs

The Pivot 1700™



This 17" color monitor offers advantages unmatched by comparably priced monitors!

- > Up to 16 million colors, maximum 1280 x 1024 resolution at 60 Hz
- > Flat square CRT design with built-in anti-glare screen and tilt and swivel base
- > Includes MacPortrait™ & WinPortrait™ video driver software and necessary cables
- > Three Year Factory Warranty

Windows™ and Apple® Power Macintosh® compatible!

Pivot 1700™ .26dp **\$1049⁹⁹** #72477
 Pivot 1700™ .28dp **\$999⁹⁹** #75000

Charismac

ANUBIS Professional Hard Drive Formatter, Installer, Driver & Utility

Anubis is the fastest, most reliable SCSI utility software available for the Macintosh®. Anubis anticipates possible problems and corrects them on the fly, protecting you from disastrous disk crashes and other unanticipated errors. Anubis is compatible with virtually all SCSI disk mechanisms, including fixed disks, SyQuests, Opticals (3.5" and 5.25") and flopticals.

- > Full support of Apple® Power Macintosh®
- > Manages all removable devices on the SCSI bus
- > Full System 7.5 compatible

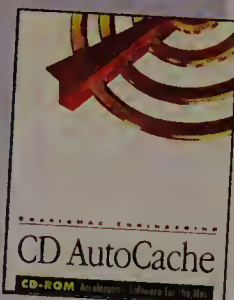
\$79⁹⁹ #68000

CD AutoCache™

"It's a recommended purchase for anyone seeking top CD-ROM performance..." - CD-ROM Today- December 1994

Keep your CD-ROM drive running at its optimal performance level. CD AutoCache™ monitors your CD-ROM drive to its maximum potential, adjusting total cache and page sizes on the fly.

\$49⁹⁹ #68001



POWERBUNDLE!

Grab Anubis Professional & CD Auto Cache for just

\$109⁹⁹ #68002

PROFESSIONAL STORAGE SUITE!

Grab Anubis Suite, RAID, TurboMo & Power Control for just

\$119⁹⁹ #69072

Xlr8

Order any Warp Factor Accelerator and Get Connectix Speed Doubler Absolutely **FREE!**

Warp Factor 135

The NEW Warp Factor accelerator for Power Macintosh® 6100, 7100 and 8100's will increase your processor speed up to a blazing 135MHz. It includes speed utilities and a 16-setting variable dial speed control. Plus, when you order one from MacMall you'll receive Connectix Speed Doubler absolutely **FREE!**

\$119⁹⁹ #75826

Warp Factor 150

Grab this Warp Factor 150 accelerator for your 7500, 8500 or 9500 series Power Macintosh®. It'll boost your processor up to 150MHz, and includes Connectix Speed Doubler **FREE.**

\$299⁹⁹ #75827

Q-Factor (for Quadra® & Centris®)..... **\$79⁹⁹** #75828
 256K Level 2 Cache **\$129⁹⁹** #75829



Syquest® EZ-135

135MB Removable Drive



Syquest

- 135MB capacity • SCSI Interfaces
- Avg. Seek Time: 13.5/ms
- Cartridge included

\$239⁹⁹ #73549

IOmega®

Zip™ Drive

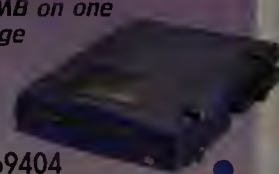
Stores 100MB on one 3.5" cartridge
 Includes one Cartridge!

\$199⁹⁹ #69404

Iomega® Jaz™ Drive

Get a hefty 1 Gigabyte of removable storage for only

\$599⁹⁹ #74475



Has it All!

More Values!



The New 3.5" 540 MB Diskette



Interface	SCSI2
Seek Time	
Track to Track	2 msec
Average	10 msec
Cache size	512k bytes
Interface Transfer Rate	
Burst	10 MB/sec
Sustained	
Maximum	5.3 MB/sec
Minimum	2.5 MB/sec
Disk Data Transfer Rate	
Maximum	8.8 MB/sec
Minimum	4.1 MB/sec

Fixed Disk Performance with All the Removability Advantages

The 540 MB MCD Diskettes have been conceived in order to respond to all your storage requirements:

- Back-up your hard drive • Mail, move, transfer and share large files • Exchange files with other users • Use one diskette per project, account or client • Travel easily with all your data • Free up space on your hard disk • Store and run all your applications and entire multimedia presentations • Save large scanned or downloaded graphics, sound and video files from networks • Store on one MCD Diskette endless floppy libraries • Transfer everyday files from slower devices
- Space and security copies for your kids' games and personal files
- CD mastering • Read CD files at lightning speed

MCD: the most reliable, the most practical, the fastest and the most economical storage solution.

540MCD External Sub System

Includes: Power cable, SCSI cable and Utility Software

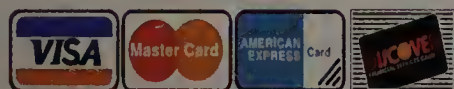
\$579⁹⁹ #77062

540MB Diskettes - 2 pack \$119⁹⁹ #77290

540MB Diskettes - 5 pack \$249⁹⁹ #77291



THE MEMORY OF THE FUTURE



We're open to take your order anytime, 24 hours a day, seven days a week.



Order toll free: 1-800-222-2808

Circle 131 on reader service card

Visit Us...

on the World Wide Web at <http://www.macmall.com>

Browse our complete range of PC and Mac™ products on the World Wide Web. You'll find up-to-date product listings, special "Web only deals" and the latest information about upcoming products.

Creative Computers is now on the World Wide Web!

Jump Online with the help of this product:

Apple® Internet Connection Kit

- ▶ Apple® Internet Dialer
- ▶ Netscape Navigator • Claris E-mailer Lite • Adobe™ Acrobat™
- ▶ Aladdin Stuffit Expander
- ▶ Plus many, many more!

\$48⁹⁹ #74233



OUR POLICIES* \$3.00 offer applies to continental U.S. only, orders over \$100. Incur extra charges. Limited to in-stock orders placed before 8pm (EST) not requiring configuration and delivered to destinations within the contiguous U.S. by Limit \$100. Next day not available to certain rural areas. Southern California, Tennessee, Arkansas and Mississippi orders may ship UPS Ground for next-day delivery. Call customer service at 800-560-6800 or tech support at 800-760-0300 if you have a question or problem with any order. No packages will be accepted without a Return Authorization Number from Customer Service. All returned products must be in original condition with all packing and registration card, within 30 days of original invoice date. For International orders, please include photocopy of the front and back of your credit card. Minimum International order is \$50 Canada, \$100 Foreign; \$20 in U.S.A. Apple® and Hewlett® Packard products cannot be shipped outside the U.S.A. International products shipped via DHL; FOB Los Angeles. While we do our best to check for mistakes, occasionally they do occur. Prices and specs subject to change without notice. ©1995 MacMall



The Mall With It All!



24 HRS A DAY 7 DAYS A WEEK

OFFER CODE MacWorld MWO611

Get your **FREE** MacMall catalog today!

Name _____
Address _____
City _____
State _____ Zip _____

Mail to:
MacMall, Dept. ADV.,
2645 Maricopa St.,
Torrance, CA 90503

Our 800 Hotlines feature our own Mac experts, trained by the manufacturers, to provide perfect computing solutions!

MacConnection®

800-800-3333

**GREAT PRICING
BEST SELECTION
AWESOME SERVICE!**

Call our FWB Hotline **800-600-9612**



**NEW!
VERSION**



**NEW
LOW PRICE**

Hard Disk

Toolkit:

Award-winning disk management software, enhances and simplifies all facets of setup and performance.

\$119.95

2999 Hard Disk Toolkit.....

JackHammer Accelerators

For Nubus Macs or PCI Power Macs: direct-to-bus data transfer at up to 20 MB/second; cuts access times by up to 50%.

21977 PCI SCSI JackHammer Accelerator..... **\$375.**
8417 Nubus SCSI JackHammer Accelerator..... 499.
14318 PocketHammer 1000FMF..... 859.
14319 PocketHammer 2050FMF..... 1499.



Upgrade
From 5.0
**ONLY
\$78.95!**

MORE NEW FEATURES!



Macromedia FreeHand 5.5—great new features:

- Support for third party Photoshop plug-ins
- Enhanced speed
- New element renderer
- New Inline Graphics feature
- Read Acrobat PDF files directly within FreeHand
- Plus all the benefits of FreeHand 5.0!

**Bonus CD
500 Fonts
10,000
Images!**

\$78.95

24016 FreeHand 5.5 Upgrade from Version 5.0.....
24017 FreeHand 5.5 Competitive Upgrade CD-ROM..... 148.95
24014 FreeHand 5.5 Full Version CD-ROM..... 399.95

Call our Hotline **800-600-8254**

Blowout Pricing From

MDS
Marlow Data Systems

Super-fast Quadspeed 4X CD-ROM Drive!
Plus, get 8 great CD titles for only \$39.95
with purchase of a CD-ROM drive!

21182 MDS 4X CD-ROM Drive
(with FREE FWB CD-ROM Toolkit)..... **\$199.**

Other Bundle Savings with CD-ROM Drive Purchase!

21823 Adobe Paint & Publish 2.0 Deluxe CD Special ~~Save \$10.~~ 34.95
22944 Grolier Encyclopedia, Rapid CD, Home Phone ~~Save \$10.~~ 49.95



23446 (8 CDs) \$39.95

Call our Hotline **800-600-8256**

Xccelerate At One Low Price!

ATI's **XCLAIM GA** for the PCI-based Power Macintosh 9500 provides blazing performance—up to eight times faster with popular Mac graphics apps. Supports display resolutions up to 1600x1200 with a 75Hz refresh rate. Available in a 4MB version with 16.7 million colors at 1152x870, and in an easily upgradable 2MB version providing 16.7 million colors at 832x624.

**Up to
8 Times
Faster!**



22676 XCLAIM GA 2MB (PCI)..... **\$379.**
22677 XCLAIM GA 4MB (PCI)..... 499.

Call our Hotline **800-600-9142**

COMMUNICATIONS

10080	Delrina Fax PRO for Macintosh.....	\$59.95
6115	Freesoft White Knight 12.0.....	85.
20545	Global Vill. PowerPort Platinum.....	359.95
20544	Global Village TelePort PLATINUM.....	199.95
11419	Hayes ACCURA 144+FAX144.....	124.95
18188	Hayes OPTIMA V.34+FAX144.....	469.95
8478	MDS FaxModem 14.4.....	89.95
4879	Practical Periph MC144MTII.....	99.95
17968	Practical Periph MC288MTII V.34.....	199.95
23031	Prometheus CyberPhone 28.8.....	259.95
22159	QualComm Eudora Pro Int. E-Mail.....	59.95
18792	Radish Comm. InsideLine.....	109.95
22236	Software Ventures Internet Valet.....	39.95
7639	STF Tech. FAXstf 3.1.....	64.95
23286	Supra Express 288.....	189.95
18831	Supra FAXModem V.34.....	229.95
6619	Synergy VersaTerm Pro.....	169.95
11842	U.S. Robotics Sportster 14.4 Fax.....	119.95
17048	U.S. Robotics Sportster V.34 Fax.....	219.95
22995	Ventana Internet Publishing Kit.....	84.95
24238	Ventana Netscape Navigator/PE.....	34.95
17470	Zoom FaxModem V.34.....	199.95

EDUTAINMENT

18246	A.D.A.M. CD.....	\$39.95
13509	Broderbund MYST CD.....	44.95
1720	Delorme Street Atlas USA CD.....	74.95
13714	Delta Tao Eric's Ult. Solitaire.....	34.95
21449	Lucas Dark Forces CD.....	49.95
13818	Maxis SimCity 2000.....	39.95
3675	Starplay Crystal Caliburn.....	36.95
4764	Voudette FLOWERScape.....	49.95

GRAPHICS

24672	Adobe Illustrator 6.0.....	\$389.95
22197	Adobe PageMaker 6.0.....	549.95
19257	Adobe Photoshop 3.01.....	569.95
24617	Auto F/X Photo Edges Vol.3.....	179.95
3011	Avid VideoShop.....	249.95
22788	Corel Gallery 2 CD-Mac.....	79.95
24535	Fractal Design Painter 4.0.....	399.95
21255	FrameMaker 5.0 or 21257 CD.....	629.95
19613	HSC KPT Convolver.....	129.95
20746	HSC Live Picture w/Photo CD.....	694.95
5087	Macromedia Director 4.0.....	819.95
20046	Macromedia Design Studio.....	699.95
24014	Macromedia FreeHand 5.5.....	399.95
17342	Pantone Color Drive.....	145.95
24580	Ray Dream Studio.....	299.95
23296	T/Maker Incredible Image Pak.....	49.95

NETWORKING

2775	Asanté Hub 8.....	\$145.
6677	Asanté MacCon-I Nubus 10-T.....	109.
20248	Allied AAUI 10T XCVR.....	37.
21362	DaynaPORT Enet LCCommSlot.....	79.
11499	Farallon EtherWave PN802 Trans.....	109.
1723	Farallon PN303 DIN-8 3 pack.....	49.95
15490	Sonic 10BASE-T Transceiver.....	33.95

STORAGE

16840	Apple External 540MB Drive.....	\$389.
14318	FWB PocketHammer 1000.....	859.
19171	Iomega Zip Drive SCSI.....	199.95
9051	MDS Internal 540MB HD.....	219.95
15950	MDS SyQuest 200MB Drive.....	399.95

ACCESSORIES

18685	BTI Type 4 Internal Duo Battery.....	\$119.95
19330	Curtis Printer/Workstation Stand.....	49.95
1092	Kensington NoteBook Traveler Dlx.....	75.
15422	Sony DG90M Cartridges (5 Pack).....	49.95
6200	Tripp Lite Isobar 6-6 Surge Supr.....	49.

BUSINESS

13510	AEC FastTrack Schedule.....	\$169.95
23995	Automatic Software Big Business.....	379.95
24055	Best!Ware Mind Your Own Busin.....	79.95
5862	CheckMark Payroll.....	89.95
12974	DeltaPoint DeltaGraph Pro III.....	139.95
11269	Inspiration.....	129.95
5454	Microsoft Office for Mac 4.2.....	479.95
2884	Microsoft Works for Mac.....	89.95
8010	Niles EndNote Plus.....	169.95
16143	Nisus Writer.....	124.95
18886	SoftKey BodyWorks CD.....	39.95
7447	SoftKey KeyCad Complete.....	29.95
14790	SoftKey WriteNow 4.0.....	44.95
16548	Symantec ACT 2.0 Upgrade.....	49.95
2986	Timeslips III.....	194.95
23684	WordPerfect 3.5 Ver. Upgrade.....	89.
17237	Writeplace Writing Coach.....	39.95

MULTIMEDIA

16515	AlTech Multipro CTV.....	\$279.95
17314	Magnavox 14" Color Display.....	299.95
19342	NEC MultiSync XV15 Monitor.....	469.
20215	NEC MultiSync XV17 Monitor.....	749.95
21611	Radius MultiView 21" Monitor.....	1899.
20734	Radius Precision View 17" Monitor.....	999.

INPUT/OUTPUT

21197	Adesso TruForm Keyboard.....	\$99.95
2374	CoStar LabelWriter XL+.....	239.95
23075	Epson Stylus Color Inkjet II.....	449.
2499	GDT PowerPrint.....	99.95
21112	HP DeskWriter 660C.....	379.
24020	HP LaserJet 5L FS.....	529.
17589	Kensington Thinking Mouse.....	89.95
21459	MDS 2 Button Trackball.....	39.95
21456	MDS Ergonomic Mouse.....	24.95
5438	Microtek ScanMaker II.....	389.
16212	Mouse Systems MacPoint.....	29.95
20770	UMAX BizCard Reader.....	239.
17779	Visioneer Mac PaperPort.....	269.
15345	Xerox TextBridge OCR Software.....	75.95

UTILITIES

20092	Aladdin Desktop Tools.....	\$49.95
6740	Aladdin StuffIt Deluxe.....	73.
17537	Central Point MacTools Pro 4.0.....	99.95
23287	Connectix Speed Doubler.....	49.95
12093	DataViz MacLink+ Translators Pro.....	95.
16857	Insignia SoftWindows Mac.....	289.95
4433	Insignia SoftWindows PMac 2.0.....	289.95
6925	Now Utilities.....	69.95
5176	Symantec Anti-Virus Mac.....	69.95
16133	Symantec DiskDoubler Pro 1.1.....	75.95
6748	Symantec Norton Utilities.....	95.95
3955	Symantec Suitcase.....	64.95

INTERNATIONAL CUSTOMERS

Additional charges & restrictions may apply, please call 603-446-3333 or fax 603-446-7791.

OUR POLICY • VISA, MASTERCARD, AMERICAN EXPRESS, and DISCOVER cards. No surcharge. • All of our products are covered by manufacturer's warranty. • We are not responsible for typographical errors. • Pricing and promotions subject to change without notice.

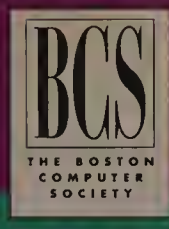
Continental U.S.: Shipping Charges: \$5 per order up to 10 pounds. On orders weighing 10 pounds or more, shipping is \$1 per pound. Please call for weight/shipping charge information. Barring events beyond our

control, all credit card orders phoned in weekdays by 3 a.m. ET will ship Airborne Express for delivery the next business day. (Some orders ship UPS Ground for next day delivery). Saturday delivery available to many areas upon request at no additional charge. Order all day Saturday thru noon Sunday for Monday delivery. Some areas require an extra day delivery. **APO/FPO, International orders and Hawaii, Alaska, Canada, Puerto Rico & U.S. Virgin Islands:** Shipping may require additional time and charges. All other areas: Call 603-446-3333 or FAX 603-446-7791 M-F 9 a.m.-5:30 p.m. ET

**FREE TECH SUPPORT
NEXT DAY DELIVERY
CUSTOM SYSTEMS OVERNIGHT!**



Berkeley Mac Users Group
"Best Mac Mail-Order
Company!"



Boston Computer Society
"Best All Around Company"
2 years in a row!



SONY
**High Performance
CD-Recordable
Drive**

- 2X performance, 300ms access, 300KB/sec transfer, IMB buffer
 - Front volume control, headphone jack
 - MTBF of 25,000 power-on hours
 - Supports all popular CD formats and recording methods
 - Includes free formatting software & upgrade coupon for FREE Corel CD Creator
- \$1999**

**Includes 8 FREE
pieces of media &
Corel CD Creator
A \$350 Value!**

24989 CSP-9211S/P External
Call our Hotline 800-600-9148

Get on the Net in Less Than 10 Minutes!



**14
Days
Unlimited
Internet Access
Included!**

Internet Valet from Software Ventures contains everything you need to get connected to the Internet in less than 10 minutes. Features include:

- Surf the World Wide Web with Enhanced Mosaic
- Send e-mail around the world with Eudora Lite
- Download files from the many sites worldwide
- A QuickTour guide and Easy Reference book
- For use with dial-up or network connections
- Can be used with any Internet provider

\$39⁹⁵

22236 Internet Valet for Mac
Call our Hotline 800-600-8357

MICROTEK
Better Images Through Innovation.

EXCELLENCE IN DESKTOP IMAGING!



**SAVE
UP TO \$1500!
WITH SCANMAKER III**

ScanMaker III
The **ScanMaker III** color flatbed scanner now includes Transparent Media Adapter and much more!

- IT FEATURES:**
- Images at up to 12 bits per RGB color channel
 - 600 x 1200 dpi resolution 2400 x 2400 dpi enhanced
 - Includes full Photoshop 3.04, Caere OCR software, ScanWizard, DCR & KCMS
 - 68.7 billion colors, 36-bit color

1688 ScanMaker III **\$1999**

Save \$50 **caere** **ONLY \$99**
off **Caere's OmniPage Pro Upgrade**
with purchase of a Microtek Scanner!

OmniPage Pro 5.0 offers accurate, flexible OCR performance and complete image editing.
23949 OmniPage Pro Upgrade **\$99**
Valid through 12/31/95

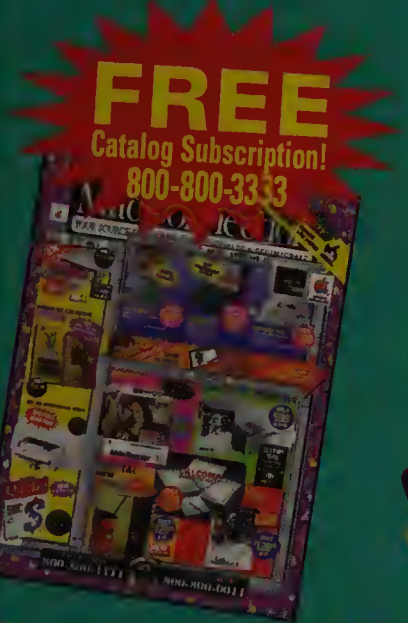


FREE
w/SM III purchase!
Holiday Promotion
October 1, '95-January 31, '96
CHOOSE:

1. Fractal Design Painter 4.0 or
2. HSC Live Picture 2.0 CD or
3. HSC Live Picture SE, KPT Convolver and Kai's Power Tools CD

* Coupon Included

Call our Hotline 800-600-9259



**FREE
Catalog Subscription!
800-800-3333**



Complete Networking Solutions



**in stock
GUARANTEE**

23492 AirDock Adapter **\$69**



**in stock
GUARANTEE**

11499 EtherWave AAUI Ethernet Adapter **\$109**



**in stock
GUARANTEE**

22173 Faster Ethernet Adapter **\$239**

Call our Hotline 800-600-9417

Learning With Microsoft!

Encarta '96 enhances your reference collection with the most up-to-date content and technology available in a multimedia encyclopedia.

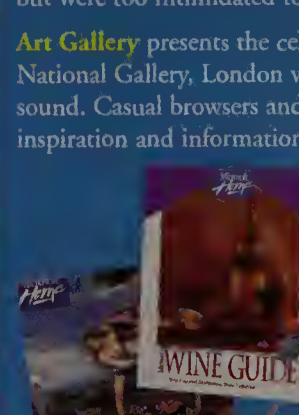
The Microsoft **Wine Guide** offers the expertise of wine critic Oz Clarke. It tells you everything you always wanted to know about wine but were too intimidated to ask!

Art Gallery presents the celebrated art collection of the National Gallery, London with vivid color, animation, and sound. Casual browsers and serious students alike will find inspiration and information!



**NEW!
PRODUCT**





24539 Microsoft Encarta '96 **\$49⁹⁵**
20866 Microsoft Wine Guide **39.95**
14913 Microsoft Art Gallery **54.95**

Call our Hotline 800-600-8251



800-800-3333
MacConnection®

196MW
OR FAX YOUR ORDER
603-446-7791
MACWORLD January 1996 173



GREAT PRODUCTS.



**INCREDIBLE
VALUE!!!**

2GB UNDER \$700

APS Q 2210

- ✓ Our lowest priced 2GB hard drive ever!
- ✓ Embedded servo eliminates thermal recalibration, perfect for both AV and non-AV applications
- ✓ 5-year warranty

\$699⁹⁵

Internal configuration

APS SCSI HARD DRIVES

Model	Capacity	Internal	SR2000
APS Q 540 ³ Quantum 540 Fireball	516MB	\$189 ⁹⁵	\$269 ⁹⁵
APS Q 840 ³ Quantum 840 Trailblazer	811MB	249 ⁹⁵	349 ⁹⁵
APS Q 1080 ³ Quantum 1080 Fireball	1042MB	279 ⁹⁵	379 ⁹⁵
APS MS 1.0 ⁵ Micropolis 4210	1001MB	549 ⁹⁵	649 ⁹⁵
APS Q 2210 ⁵ Quantum Capella VP32210	2100MB	699 ⁹⁵	799 ⁹⁵
APS MS 2.0 ⁵ Micropolis 4221	1955MB	799 ⁹⁵	899 ⁹⁵
APS Q 2.0 ⁵ Quantum Atlas XP32150	2050MB	799 ⁹⁵	899 ⁹⁵
APS ST 2.0 ⁵ Seagate ST 32550N Barracuda	2047MB	899 ⁹⁵	999 ⁹⁵
APS MS 2.0Av ⁵ Micropolis 4221AV	1955MB	899 ⁹⁵	999 ⁹⁵
APS ST 4200 ⁵ Seagate ST 15230N	4094MB	999 ⁹⁵	1099 ⁹⁵
APS MS 4.0 ⁵ Micropolis 3243	4064MB	1099 ⁹⁵	1199 ⁹⁵
APS MS 4.0Av ⁵ Micropolis 3243AV	4064MB	1199 ⁹⁵	1299 ⁹⁵
APS ST 4.0 ⁵ Seagate ST 15150N	4094MB	1399 ⁹⁵	1499 ⁹⁵
APS Q 4.0 ⁵ Quantum Atlas XP34300	4101MB	1299 ⁹⁵	1399 ⁹⁵
APS MS 9.0 ⁵ Micropolis 1991	8669MB	2199 ⁹⁵	2399 ⁹⁵
APS MS 9.0Av ⁵ Micropolis 1991AV	8669MB	2299 ⁹⁵	2499 ⁹⁵
APS ST 9.0 ⁵ Seagate ST410800N	8669MB	2299 ⁹⁵	2499 ⁹⁵

*External case is special Full Height only.



APS ST 4200

- ✓ Terrific with page layout and graphics files
- ✓ 5400 rpm spindle speed for great performance
- ✓ Our lowest price per MB among 4GB drives – only 24¢ per MB
- ✓ 5-year warranty

APS FAST/WIDE DRIVES

Model	Capacity	SR2000
APS MS 2.0W ⁵ Micropolis 4221W	1955MB	\$1149 ⁹⁵
APS Q 2.0W ⁵ Quantum Atlas XP32150 W	2050MB	1149 ⁹⁵
APS ST 2.0W ⁵ Seagate ST 32550NW Barracuda	2047MB	1149 ⁹⁵
APS MS 4.0W ⁵ Micropolis 3243W	4064MB	1699 ⁹⁵
APS ST 4.0W ⁵ Seagate ST 15150NW	4094MB	1699 ⁹⁵
APS Q 4.0W ⁵ Quantum Atlas XP34300W	4101MB	1699 ⁹⁵

APS DISK ARRAYS (0-5)

Model	Capacity	RAID Level	Price
ARRAID S2/5400 ⁵	2GB	0 (Striped)	\$1299 ⁹⁵
* ARRAID S2/7200 ⁵	2GB	0 (Striped)	1599 ⁹⁵
* ARRAID S4/7200 ⁵	4GB	0 (Striped)	2399 ⁹⁵
* ARRAID S8/7200 ⁵	8GB	0 (Striped)	3299 ⁹⁵
ARRAID M1/7200 ⁵	1GB	1 (Mirrored)	1499 ⁹⁵
ARRAID M2/7200 ⁵	2GB	1 (Mirrored)	2399 ⁹⁵
* ARRAID S8/7200 ⁵	8GB	5 (Parity)	4999 ⁹⁵

**\$350 VALUE!
LIMITED OFFER**

GET THE QLOGIC FAST! SCSI MAC PCI ADAPTER CARD FREE! WHEN YOU PURCHASE ONE OF THE SPECIALLY MARKED ARRAID SYSTEMS LISTED ABOVE.*

- ✓ Increase ARRAID performance
- ✓ Add up to seven SCSI device IDs
- ✓ For PCI Power Macs



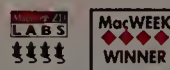
APS ST 4200

\$999⁹⁵

*Internal
Config.*

**OUR LOWEST
PRICE EVER
ON A 1GB DRIVE
APS Q 1080**

- ✓ Well suited for home and office use
- ✓ Performance boosted by a 5400 rpm spindle speed
- ✓ 3-year warranty



\$279⁹⁵

Internal configuration

**EXTRAORDINARY SPEED!
FAST/WIDE
SCSI HARD DRIVES FROM APS
FOR EXTRA HIGH-PERFORMANCE BUSINESS USE**

2GB	\$1149 ⁹⁵
4GB	1699 ⁹⁵

**CALL TODAY
FOR MORE
INFORMATION**

Patented DATerm™ (Digital Active Termination™) technology
Copyright © 1995 APS Technologies
Internal drives for Quadra 800 and Centris 610 available
1-5 Denotes length of manufacturer's warranty in years

**AWARD-WINNING
PRODUCTS AND SERVICE**

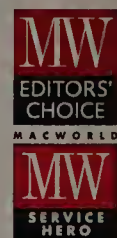
◆◆◆◆ MacWEEK

Best
Technical
Support



1994
Consultants
Choice Awards

Macintosh
Consultants
Network



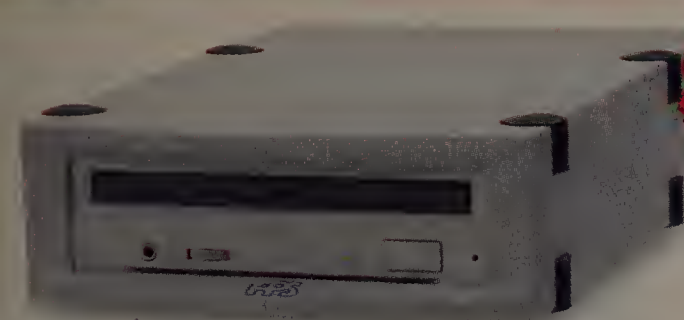
APS TECHNOLOGIES

1-800 235-3707 APS Technologies 6131 Deramus, Kansas City, MO 64120

Visit our Web Page at <http://www.apstech.com/>

PRICELESS SUPPORT!

Call for latest prices.
Prices in this ad effective Oct. 25, 1995.



APS CD-R
\$1299⁹⁵
External Config.



THE LATEST RETROSPECT INCLUDED FREE WITH ALL DAT, DLT & HYPERQIC DRIVES



THE APS CD-R

- ✓ Keep your important data safe and secure on CD media with a 100-year shelf life
- ✓ Random access gives you fast retrieval of your critical information

NEW RECORDABLE CDs...650MB CAPACITY FROM SONY
BUY 2 W/DRIVE GET ONE FREE



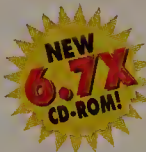
\$9⁹⁵ EACH



\$999⁹⁵
External configuration

APS HyperDAT

- ✓ Perfect for workstations or servers with large amounts of compressible data
- ✓ Up to 8GB of storage on a single 120m DAT tape*
- ✓ 2-year warranty



APS T 3701

- ✓ Super-fast 6.7X speed gives smoother video and animation output

\$449⁹⁵
External configuration

APS TAPE DRIVES

Model	Capacity*	Internal	SR2000
QIC-3080 Mechanism APS HyperQIC ^{TM2}	2GB*	—	\$499 ⁹⁵
DDS-1 Non-Compression Mechanism APS DAT ²	4GB*	\$649 ⁹⁵	699 ⁹⁵
DDS-1 Compression Mechanism APS DAT-DC ²	4GB†	749 ⁹⁵	799 ⁹⁵
DDS-2 Non-Compression Mechanism APS ProDAT ²	4GB*	849 ⁹⁵	899 ⁹⁵
DDS-2 Compression Mechanism APS HyperDAT ²	8GB†	949 ⁹⁵	999 ⁹⁵
APS DATLoader600 ² 48GB††	—	—	*2299 ⁹⁵
Digital Linear Tape Mechanism APS DLTXT ²	30GB†	—	*4499 ⁹⁵
Digital Linear Tape Mechanism APS DLT40 ²	40GB†	—	*5999 ⁹⁵

*Actual data compression and tape capacity vary greatly depending of the type of data recorded, other system parameters and environment.
†Native capacity without data compression.
‡ 2:1 Hardware data compression. †† Using six 120 meter DAT tapes
*Special Full Height case only
All APS tape drives include Retrospect by Dantz



APS DATLoader600

- ✓ Ideal network backup system — automates your entire data management process
- ✓ Fast DDS-2 mechanism — up to 48GB†† per 6-cartridge magazine
- ✓ Includes a 6-tape magazine with 6-120m tapes

\$2299⁹⁵
External configuration

APS CD-ROM DRIVES

Model	SR2000
APS T 3701 ¹	6.7X-speed \$449 ⁹⁵
APS CD-R ¹	Recordable CD-ROM 1299 ⁹⁵

APS SYQUEST DRIVES

Model	Capacity	SR1000	SR2000
APS SQ 3270 ²	255MB	\$429 ⁹⁵	\$399 ⁹⁵
APS SQ 5200 ²	194MB	N/A	389 ⁹⁵

1-5 Denotes length of manufacturer's warranty in years



SyQuest Media* Special Low Price

SQ3270 cartridge **270MB \$59.95**
SQ5200 cartridge **200MB 79.95**

*Unformatted

SALES & SUPPORT AVAILABLE SATURDAY & SUNDAY

APS INTERNATIONAL Global Storage Resource

APS Intl. Sales Line (816) 920-4109
Si parla l'italiano in (816) 920-4137

On parle français au (816) 920-4135
Wir sprechen Deutsche (816) 920-4138

Se habla español en (816) 920-4136
どうぞ速慮なく日本語の
ファックスでも申込み下さい。

24-Hour Intl. Fax: (816) 483-3077



Visa, MasterCard, Discover, American Express: No Surcharge
Same day shipping for personal checks (Restrictions apply)

1-800 874-1428

CALL FOR CURRENT PRICING REF. CODE: 286012

- 30-day money-back guarantee (excluding opened software). Your risk is the cost of shipping.
- Drive-for-Drive Repair or Replacement Warranty. The warranty length is denoted by the superscripted number next to each drive model. APS will, at its discretion, replace or repair products found to be defective according to the terms of the product's warranty.
- No restocking fee during 30-day money-back guarantee.
- Internal hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh where applicable.
- External SCSI-2 drives come with a premium 25x50 SCSI cable, power cord and user guide.
- All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software, and APS Technologies' APS PowerTools SCSI formatter/hard disk partitioner.
- International customers must pay for all shipping charges.
- Toll-free Technical Support as needed. Regular hours are 8 am to 8 pm Monday thru Friday, 9 am to 5 pm Saturday, Central Time.
- Prices and specifications are subject to change without notice.

CALL FOR YOUR FREE CATALOG



APS Technologies

**NEW
radius
Mac clones!**

Great Price,



**New
Low Clone
Prices!**

Radius 81/110

16MB RAM, 730MB HD, CD-ROM drive, Keyboard, 32K cache, and 256 level 2 cache. Monitor sold separately. Price after \$200 mail-in rebate.

- Add PrecisionView 21" Monitor
 - Thunder 24/GT Graphics Accelerator
- Complete system price \$5,979
Lease for only \$216/month*



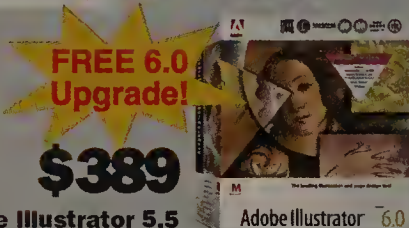
Power Macintosh 7500/100

16MB RAM, 500MB HD, CD-ROM drive. Monitor & keyboard sold separately.

- Add 17" Radius PrecisionView Display
 - Extended Keyboard
- Complete system price \$3,699
Lease for only \$139/month*



Power MacintoshTM Systems, Software



Adobe Illustrator 5.5
Includes free Extensis DrawTools & upgrade to 6.0



QUARK

QuarkXPress 3.31 \$679
For Power Mac



Hitachi SuperScan 20

20" CRT .28 dot pitch. Supports resolutions up to 1360x1024.

SuperScan Pro 15	\$439
SuperScan 17	\$969
SuperScan 20	\$1449
SuperScan 21	\$2049



NEW PCI JackHammer \$399
NEW Hammer CD-R 2X \$1,549
We carry the full line of FWB products including Fast & Wide Disk Arrays, DATs and more. Call!



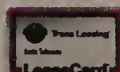
TARGA 2000 PCI
Professional digital video authoring and editing system

The Express Advantage:



Expert Advice

We know our products & understand your applications. No order-takers here.



Business Leases

Flexible leasing options for qualifying businesses.



Free Tech Support

Call toll-free for as long as you own your Mac.



Fast Delivery

With FedEx & UPS, we ship promptly, based on availability.



Top Products

We carry only the best products available that we've evaluated for quality.

Apple, the Apple logo, Macintosh, Macintosh Quadra and Power Macintosh are trademarks of Apple Computer, Inc. Prices are subject to change without notice. Mac pricing based on purchase of CPU with monitor. "Stand Alone" CPUs may be more. All returned orders may be subject to a 15% restocking fee plus return shipping. Call for RMA before returning. Software, unless defective, cannot be returned after it has been opened. *Lease prices based on 36 month term with \$1 buyout. Call for complete details.

Expert Advice.

New PCI Macs!



Power Macintosh 8500/120

16MB RAM, 1GB HD, CD-ROM drive.
Monitor & keyboard sold separately.

- Upgrade RAM to 24MB
 - Add 20" Hitachi Super Scan Display
 - Extended Keyboard
- Complete system price \$5,839
Lease for only \$214/month*



Power Macintosh 9500/120

16MB RAM, 1GB HD, CD-ROM drive.
Monitor & keyboard sold separately.

- Upgrade RAM to 32MB
 - Add 21" Radius PrecisionView Display
 - Radius ThunderColor 30/1152 accelerated PCI graphics card
 - Extended Keyboard
- Complete system price \$9,459
Lease for only \$349/month*

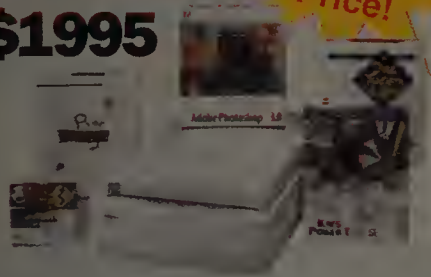


and Peripherals

UMAX

\$1995

New Low Price!



UMAX PowerLook

with Transparency Adapter, Photoshop & more!

UC 1260	\$689
Vista S6/Vista S8	\$499/\$629
New PowerLook II	Call
New Mirage	Call

Choose your software bundle—

Pro Bundle: Full Photoshop KPTSE	\$199
LE Bundle: Photoshop LE & OCR	\$79

EPSON

\$1799



Epson Stylus Pro XL
Prints up to 12.5" x 18" full
bleed in photo quality color

Leaf

Includes FREE
Fargo Photo Fun
Color Printer



\$4750

Leaf Lumina

Versatile digital camera/scanner captures 3-D
objects or larger 2-D artwork

**Call to receive a
FREE catalog!**

1-800-765-0020



We stock a complete line of quality products from all of the above manufacturers & more.

1-800-765-0020

Order Toll Free M-Th 8am-7pm, Fri til 6pm, Sat 10am-2pm (CST) • 24 Hour Fax • Customer Service Hotline: 1-800-236-3059



International Orders Shipped Daily

Fax: 312.244.3081

Phone: 312.244.3000

**express
direct**

2720 North Paulina Avenue
Chicago, Illinois 60614

- Low price guarantee!
- Selling quality drives at incredibly low prices Since 1987.
- 30 Day money back guarantee.
- Fast service. Most orders shipped same day!
- Lifetime technical support.
- 24 Hour turnaround, 1 year replacement policy.
- Friendly, helpful staff. We appreciate your business!

OPTICAL DRIVES

230MB FUJITSU

- Read and write 128 or 230MB disks
- DynaMO external \$479 1 free disk

1.3 Gig NEC

- Read and write 650MB or 1.3Gig disks
- 2 Year warranty! 1MB data buffer.

External only \$1129 1 free disk

4.6 Gig PINNACLE MICRO

- Read and write 2.3Gig or 4.6Gig disks
- 512K data Buffer. 1 year warranty.

External only \$1499 1 free disk

FUJITSU 1Gig

Internal \$275
External \$335

(\$5 less than Quantum, 14% faster read, 4% faster write)

PINNACLE MICRO

Recordable CD ROM \$1249

- Complete external includes 2 free disks.
- CDR-74 disks Qty 50/100/500 \$6.59/6.29/5.99

NEC

SUPER VALUE!

1 Gig

1.6 Gig

Internal \$259

Internal \$379

External \$319

External \$439

Nakamichi

7 Disk CD ROM Changers

Double Speed, 380ms

\$259

Quad Speed, 340ms

\$409



SyQuest

270MB Disks

1 - 4 \$59

5 - 9 \$57

10-19 \$56

20+ \$54

FUJITSU

BEST BUY!

FUJITSU OFFERS THE BEST VALUE ON THE MARKET!

- Low price guarantee on all Fujitsu drives!

Capacity	Speed	RPM	Buffer	Wty	Model	Internal	External
530MB	12ms	5400	(2.5" for Powerbook)		M2706S	\$399	n/a
1080MB	9.5ms	5400	256K	3yr	M1606S	\$275	\$335
2176MB	9.5ms	7200	512K	5yr	M2915S	\$645	\$705
4350MB	8.9ms	7200	512K	5yr	M2934S	\$949	\$1009

Quantum

#1 HARD DRIVE

FOR MAC!



Capacity	Speed	RPM	Buffer	Wty	Model	Internal	External
850MB	14ms	4500	128K	3yr	TB850S	\$222	\$282
1080MB	12ms	5400	128K	3yr	FB1080S	\$280	\$340
2150MB	8ms	7200	1024K	5yr	XP32150	\$735	\$795
2216MB	8.5ms	5400	512K	5yr	VP32210	\$635	\$695
4300MB	8.6ms	7200	512K	5yr	XP34301	\$979	\$1039

MegaHaus is your #1 source for Quantum drives.

- Low price guarantee on all Quantum drives!
- Same day shipping on most orders!



SyQuest

Genuine SyQuest cartridges
Qty 4-9 / 10+ or with drive.

44MB	\$42	\$40
88MB	\$47	\$45
105MB	\$53	\$50
200MB	\$76	\$71
270MB	\$59	\$56

Capacity	Speed	Compatible	Model	Buffer	Internal	External
88MB	20ms	44, 88MB	SQ5110C	32K	\$285	\$339
135MB	13.5ms	135MB	EZ135S	128K	n/a	\$235
200MB	18ms	44,88,200MB	SQ5200C	64K	\$419	\$469
270MB	13.5ms	105, 270MB	SQ3270S	128K	\$409	\$439

MegaHaus is your #1 source for SyQuest drives.

- Low price guarantee on all SyQuest drives!
- 1 FREE cartridge with each drive!
- 2 year warranty on drive and case!
- 5 year warranty on all cartridges!
- Same day shipping on most orders!

OUR PRICE
INCLUDES
1 DISK!

Brand	Capacity	Seek	RPM	Buffer	Wty	Model	Internal	External
Seagate	1050MB	9ms	5411	512K	5yr	ST31230N	\$369	\$429
Conner	1080MB	9ms	5400	256K	5yr	CFP1080S	\$292	\$352
NEC	1083MB	11ms	4090	256K	3yr	NEC3827	\$259	\$319
NEC	1620MB	11ms	4500	256K	3yr	NEC3847	\$379	\$439
Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221	\$729	\$789
Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221AV	\$779	\$839
Conner	2147MB	9ms	5400	512K	5yr	CFP2105S	\$689	\$749
Seagate	2147MB	9ms	5411	512K	5yr	ST32430N	\$739	\$799
Seagate	2147MB	8ms	7200	512K	5yr	ST32550N	\$849	\$909
Seagate	4290MB	9ms	5400	512K	5yr	ST15230N	\$969	\$1029
Seagate	4290MB	8ms	7200	1024K	5yr	ST15150N	\$1199	\$1259
Micropolis	4294MB	8ms	7200	512K	5yr	MC3243	\$989	\$1049
Micropolis	4294MB	8ms	7200	512K	5yr	MC3243AV	\$1069	\$1129
Conner	4294MB	9.5ms	7200	512K	5yr	CFP4207S	\$1049	\$1109
Micropolis	9100MB	12ms	5400	512K	5yr	MC1991	\$1999	\$2099
Micropolis	9100MB	12ms	5400	512K	5yr	MC1991AV	\$2109	\$2209
Seagate	9090MB	11ms	5400	1024K	5yr	ST410800N	\$2129	\$2229

BEST
BUY!

WIDE SCSI (ATTO WIDE SCSI controllers PCI \$349, Nubus \$839 with WIDE SCSI drive purchase.)

Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221W	\$825	\$925
Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221WAV	\$879	\$979
Quantum	2140MB	8ms	7200	512K	5yr	XP32151W	\$899	\$999
Seagate	2147MB	8ms	7200	512K	5yr	ST32550W	\$939	\$1039
Fujitsu	2176MB	9.5ms	7200	512K	5yr	M2915W	\$699	\$799
Quantum	2210MB	8.5ms	5400	512K	5yr	VP32210W	\$779	\$879
Seagate	4290MB	8ms	7200	1024K	5yr	ST15150W	\$1259	\$1359
Micropolis	4294MB	8ms	7200	512K	5yr	MC3243W	\$1089	\$1189
Micropolis	4294MB	8ms	7200	512K	5yr	MC3243WAV	\$1169	\$1269
Fujitsu	4350MB	8.9ms	7200	512K	5yr	M2934W	\$1019	\$1119
Micropolis	9100MB	12ms	5400	512K	5yr	MC1991W	\$2129	\$2279



M-F 8-8 Sat 9-3 Central
Local (713) 534-3919
Fax (713) 534-6580
TTY (Deaf Line) 1-800-473-0972
No International orders accepted.

January 1996 MacWorld



2201 Pine Drive
Dickinson, Texas 77539

Internet <http://phoenix.net/~megahaus>

Prices and specifications subject to change. Some exceptions may apply to low price guarantee. All trademarks are registered trademarks of their respective companies. Returns must be in new condition, and may be subject to restocking fee. Shipping is not refundable. Personal checks held for clearance. © MegaHaus 1995

ProDirect 800-555-1256

Fax 24 hours a day 612-941-1109
International orders call 612-941-1805

Professional Service.....Manufacturer Direct Prices!

Service•Performance•Price... ALWAYS™

Prices are subject to drop-Please call for the most current pricing!!

90 Day Performance Guarantee on all ProDirect Hard Drives... Call for Details

Seagate

1.2 GB Hawk	\$365	\$425
11 ms Seek 5400 RPM 512 KBuffer 5 Year Warranty		
2.4 GB Hawk	785	845
9 ms Seek 5400 RPM 512K Buffer 5 Year Warranty		
2.5 GB Barracuda 2	835	895
8 ms Seek 7200 RPM 1024K Buffer 5Year Warranty		
4.3 GB Barracuda 4	1255	1315
8 ms Seek 5400 RPM 1024K Buffer 5 Year Warranty		
2.5 GB Fast & Wide Barracuda	925	985
8 ms Seek 7200 RPM 128K Buffer 5 Year Warranty		
4.3 GB Fast & Wide Barracuda	1330	1430
8 ms Seek 7200 RPM 128K Buffer 5 Year Warranty		
9.0 GB Elite	2025	2125
11 ms Seek 5400 RPM 512K Buffer 5 Year Warranty		
9.0 GB Fast & Wide Elite	2099	2199
11 ms Seek 5400 RPM 512K Buffer 5 Year Warranty		

FUJITSU

530 MB	\$175	\$235
9 ms Seek 4500 RPM 256K Buffer 3Year Warranty		
1.2 GB	285	325
11 ms Seek 5400 RPM 512K Buffer 3 Year Warranty		
2.1 GB	755	815
8.5ms Seek 7200 RPM 1024K Buffer 3 Year Warranty		
4.2 GB	1495	1555
8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty		



- **PowerStor™** active termination with the flip of a switch.
- 5 Year 24 Hour Replacement Warranty
- Optional Fixed Daisy Chain Connector... Puts an end to your cable nightmares
- On/Off switch conveniently located on the FRONT of our cabinet.

Featured Products

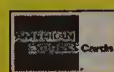
IBM 540 MB Powerbook Drive	\$285	\$365
IBM TravelStar 12 ms Seek 4900 RPM 128K Buffer 1Year Warranty		
Quantum 535 MB	\$195	\$255
QTB535, 5400RPM, 9ms seek, 512K cache, 5 year warranty		
Conner 1.2 GB	\$285	\$345
Conner 1060, 5400RPM, 9 ms seek, 5 year warranty		
Fujitsu 2.1GB	\$749	\$809
F2915s, 7200RPM, 9ms seek, 5 year warranty		
Quantum Grand Prix 4.0GB	\$985	\$1040
Q34301, 7200, 8.6ms seek, 512K cache, 5 year warranty		
Seagate 9.0GB	\$2099	\$2199
ST410800, 5400RPM, 11ms seek, 512K cache, 5 year warranty.		

90 Day Performance Guarantee on all ProDirect Hard Drives... Call !

IBM

540 MB	\$185	\$245
9 ms Seek 5400 RPM 128K Buffer 5Year Warranty		
1.2 GB	269	329
11 ms Seek 4500 RPM 512K Buffer 5 Year Warranty		
2.2 GB	755	815
8.5ms Seek 7200 RPM 1024K Buffer 5 Year Warranty		
4.3 GB	1325	1385
8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty		
5.3 GB	1425	1485
8ms Seek 5400 RPM 1024K Buffer 5 Year Warranty		

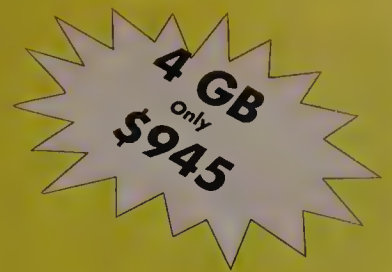
- No Surcharge on Credit Cards!
- No out of state sales tax collected
- Same day shipping on most products advertised!
- All product tested before shipping to ensure plug and play convenience.
- Need a written Quote ? Call to receive a Quick Quote™ in 10 minutes or less or your shipping is FREE!



NEVER A SURCHARGE!

ProDirect, Inc. 6824 Washington Ave. South Eden Prairie, MN 55344

Circle 135 on reader service card



Quantum

365 MB	\$135	\$195
11 ms Seek 4500 RPM 128K Buffer 2 Year Warranty		
535 MB Performance	!185	260
9 ms Seek 5400 RPM 512K Buffer 5 Year Warranty		
540 MB	170	230
11 ms Seek 5400 RPM 128K Buffer 3 Year Warranty		
730 MB Value!	185	245
11 ms Seek 5400 RPM 128K Buffer 2 Year Warranty		
1080 MB	265	325
11 ms Seek 4500 RPM 128K Buffer 3 Year Warranty		
2.2 GB Capella	675	735
8.5ms Seek 5400 RPM 1024K Buffer 5 Year Warranty		
2.0 GB Atlas	785	845
8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty		
4200 MB Grand Prix	985	1085
8.6 ms Seek 7200 RPM 512K Buffer 5 Year Warranty		
4.3 GB Atlas	1275	1335
8ms Seek 7200 RPM 1024K Buffer 5 Year Warranty		

MICROPOLIS

2.1 GB M4221	\$755	\$815
8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty		
4.3 GB M3243	1020	1080
8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty		
9.0 GB M1991	1925	2025
8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty		

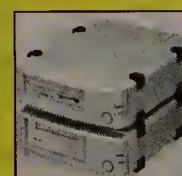
MICROPOLIS AV

Recommended For Maximum AV Recording Performance

2.1 GB M4221AV	\$820	\$880
8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty		
4.3 GB M3243AV	1095	1155
8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty		
9.0 GB M1991AV	2025	2125
8.5 ms Seek 7200 RPM 512K Buffer 5 Year Warranty		

SCSI HARD DRIVE CABINETS

PowerStor™ 5.25" or 3.5" half ht open/closed bezel HD enclosure	\$75
Minicab™ 3.5" half ht open/closed bezel HD enclosure	\$65
Full Height Cab 5.25" full height cab	\$139
Multi Bay Cabinets 5.25" and 3.5" cabinets available	\$CALL

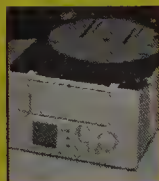


All prices are subject to change without notice. Returned orders are subject to a restocking fee. International customers pay all shipping charges. All shipping charges are non-refundable. To return merchandise call for an RMA number. All RMAs must be returned within 10 business days of issuance. Customers are responsible for shipping charges to return product

Digital Tape Backup

hp HEWLETT PACKARD

2.0 GB		
SCSI 15MB/min., 4mm media,	\$835	\$895
3-5 GB		
SCSI 45MB/min., 4mm media,	940	995
4-10 GB		
SCSI 60MB/min., 4mm media,	1129	1189
24-60 GB SCSI Auto Tape Loader	3195	3295
HP1553, 60MB/min., 4mm media		



Quantum DLT SCSI

Model	Capacity	Trans.Rate	Media	Price(Ext)
DLT2000X30GB		2.5MB/sec	DLT20	5295
DLT4000 40GB		3MB/sec	DLT40	6295

Tape backup drives include 1 piece of media
Cheyenne backup software also available-call for details

8:00am-7:00pm (CST) Mon.-Fri.

9:00 am- 4 pm Saturday



your **Macintosh®** catalog SuperStore

Serving Mac users since 1986



TelePort Platinum

Incredible 28,800 bps speed saves you time and money!

#01155

Only **\$199⁹⁸**



ViewSonic 17GA Perfect Sound Multimedia Monitor

#88429

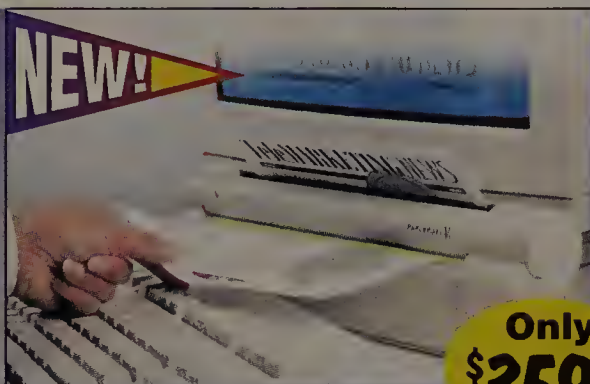
Only **\$849⁹⁸**



HOT! BUNDLE

Only **\$89⁹⁸**

X Wing/MouseStick II Bundle #87508



PaperPort Vx

The easiest way to get paper into your Mac!

#88164



VISIONEER

Only **\$359⁹⁸**



Radius System 81/110 16/730

#90911

radius

Only **\$2999^{*}**

*\$200 Factory rebate through 12/31/95

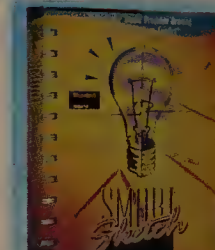


Full Throttle/Gravis GamePad Bundle

#87509

Only **\$69⁹⁸**

HOT! BUNDLE



SmartSketch/ArtPad II w/Dabbler

Plus get ClickArt Studio Select CD FREE! #89719

Only **\$198⁹⁸**

Save Over \$67!

HOT! BUNDLE



Pleiades Research Front Office

Only **\$219⁹⁸**

- Voice Mail and FaxBack
- Auto Attendant
- Remote Messaging and Paging

#89568



Mavis Beacon Typing for Kids/MacPride Kidsboard Bundle

Only **\$89⁹⁸**

#88357

HOT! BUNDLE

SelectPhone CD

FREE!

MCI phone card with 30 units long distance time!

Only **\$99⁹⁸**

#25485



Disney's Winnie the Pooh Storybook CD

Go on a fun learning adventure with Winnie the Pooh

Only **\$34⁹⁸**

#90014

8MB SIMMS
Only **\$289⁹⁸**
Call for details

Before you buy, call The Mac Zone

1-800-436-0606

For the best Macintosh products at better than Warehouse and Superstore prices.

Fax (206) 603-2500 • International (206) 603-2550 • CompuServe code: GO MZ
CORPORATE SALES 1-800-258-0882 GOVERNMENT SALES 1-800-372-9663 EDUCATION SALES 1-800-381-9663 INTERNATIONAL SALES 1-206-603-2570 eWorld @MACZONE

© Copyright 1995 Multiple Zones International Inc. All rights reserved. The Mac Zone is a federally registered trademark.

Full Line of Apple Macintosh® Computers

Overnight Delivery
AIRBORNE



Over 5,000 Products

Overnight Delivery only \$3*



The Hottest Bundles!

Low Prices Everyday

*Up to 10 lbs.

ORDER ANYTIME
**24 HOURS A DAY
7 DAYS A WEEK**



Star Trek: The Next Generation

Screen Saver

Protect your screen with
the Next Generation!

#88248

Only
\$27⁹⁸



LucasArts Wing Commander III: Heart of the Tiger

Battle in deep space

#88682

Only
\$49⁹⁸

HOT!



America's Funniest Home Videos

Now comes to your
Macintosh!

#88116

Only
\$29⁹⁸



SoftWindows 2.0

for Power Mac

Guaranteed to run Windows
and DOS programs on
your Mac! #98475

Only
\$298⁹⁸

HOT!

**INSIGNIA
SOLUTIONS.**

Shop The Mac Zone
ONLINE!

Online Shopping

Internet Address:

<http://www.maczone.com/maczone>

or to visit our store on

marketplaceMCI:

<http://www.internetMCI.com>

eWorld type: **MACZONE**

(under shortcut)

CompuServe type: **GO MZ**

The Mac Zone Trusted
Internationally

• France - 33 14 688 4040

• United Kingdom - 44 1483 211 456

• Scandinavia - 45 86 11 8183

• Benelux - 31 20 626 2299

• Portugal - 351 1 387 4558

• Spain - 341 532 9042

• Middle East - 971 435 9800

• Israel - 972 279 6160

• Italy - 39 383 49879

• Mexico - 525 611 4646

• Colombia - 571 619 4000

• Venezuela - 582 952 7808

• Central America - 506 224 4444

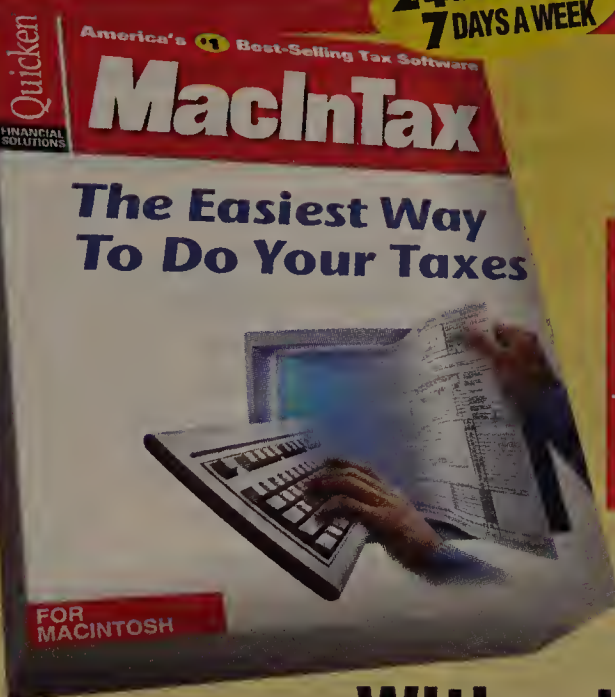
• Hong Kong - 852 2851 1754

• Japan - 813 5454 7226

• Singapore/Malaysia - 65 745 5558

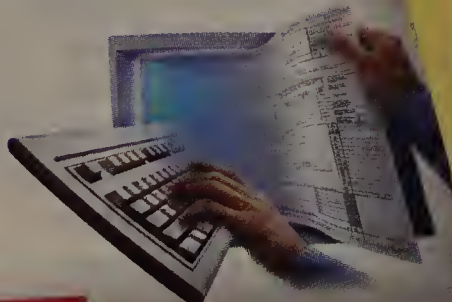
• Indonesia - 62 21 530 4567

• New Zealand - 647 571 0980



MacInTax

The Easiest Way
To Do Your Taxes



FOR
MACINTOSH

\$5 REBATE!
Regular Zone Price **\$39⁹⁸**
Mfr. Mail-In Rebate* **-\$5⁰⁰**
Your Price After Rebate \$34⁹⁸

Professional Tax Help Without the Expense

This tax season, put away your pencil, pad and calculator.
And put America's #1 tax preparation software to work for you!

MacInTax 1040 Final '95

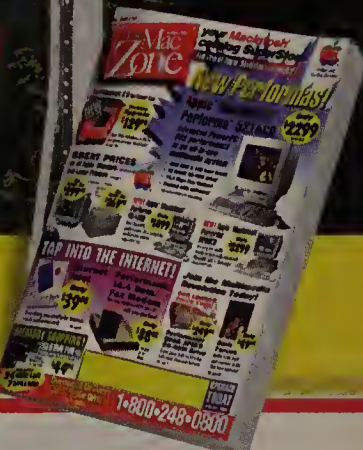
MacInTax® makes doing your taxes as easy as 1-2-3. Simply answer MacInTax's easy-to-understand interview questions. MacInTax puts your answers in the right places and does the calculations automatically. Then it reviews your return for omissions, overlooked deductions and other entries that could trigger an IRS audit. Finally, MacInTax prints ready-to-file forms on plain white paper from almost any printer. Sign them and drop them in the mail. It's that simple! Intuit #06164

Sleepless in Seattle...

You bet! We're
here 24 hours
a day, 7 days a
week to serve
you when you
need us.



1-800-436-0606
Call Today for Your **FREE CATALOG!**



YES! START MY FREE 1-YEAR CATALOG SUBSCRIPTION ASAP!



☐ **MAC ZONE**



☐ **PC ZONE**



☐ **the Home
Computer**

Name _____

Address _____

City _____

State _____

Apt _____

Zip _____

Mail to: The Mac Zone, 15815 SE 37th St., Bellevue, WA 98006-1800

I buy primarily for:

☐ Home Use
☐ Business Use
☐ Work-from-
Home Use

MW601

MW601

PLEASE USE THIS CODE TO RECEIVE THESE SPECIAL PRICES
Circle 71 on the reader service card

Quantum
LIGHTNING

\$189

730MB

Internal Lightning
C109 1154

30 DAY

\$999

Quantum
GRANDPRIX

Internal Grand Prix
C109 1159

4.3GB
7200 RPM

MacUser
★★★★
October 1995

30 DAY

PowerDomain 2940W
SCSI Accelerator
AHA PCI SCSI Master

- Supports fast & wide SCSI devices
- Up to 20MB/sec SCSI data transfer rate
- Connects up to 15 SCSI peripherals
- Easy to use installation utilities

A024 1006

\$369

adaptec

\$269

Internal Deskstar XP
C109 1237

IBM
DESKSTAR XP

1GB

30 DAY

Internal Barracuda4
C109 2207

\$1389

Seagate
BARRACUDA 4

4.3GB **7,200 RPM**

30 DAY

2.5" Daytona
Drives

Quantum

514MB

\$299

Internal
0030 1002

30 DAY

Source Code
69116

ClubMac

1-800-258-2622

Entry level and high performance drives

Quantum	Access Time	Warranty	Part No.	Internal	Part No.	External
420MB TrailBlazer	14ms	2 years	C109 1204	\$179	C109 1205	\$239
730MB Lightning	11ms	2 years	C109 1154	\$189	C109 1102	\$249
850MB TrailBlazer	14ms	2 years	C109 1206	\$229	C109 1207	\$289
1080MB Fireball	12ms	3 years	C109 1202	\$279	C109 1203	\$339
2200MB Capella	8.5ms	5 years	C109 1213	\$689	C109 1212	\$749
4300MB Grand Prix	8.6ms	5 years	C109 1159	\$999	C109 1108	\$1059
2.5" Hard Drive						
341MB Daytona	17ms	1 year	Q030 1041	\$249	C109 1119	\$349
514MB Daytona	17ms	1 year	Q030 1002	\$299	C109 1109	\$399

Seagate						
2.4GB Hawk 2 LP 32430N	9ms	5 years	C109 2211	\$739	C109 2112	\$799
4.3GB Hawk 4 15230N	9ms	5 years	C109 2212	\$999	C109 2113	\$1059
2.5GB Barracuda 2 LP 32550N	8ms	5 years	C109 2203	\$889	C109 2109	\$949
4.3GB Barracuda 4 15150N	8ms	5 years	C109 2207	\$1329	C109 2106	\$1389
5.25" Full Height						
9.1GB Elite-9 410800N	11ms	5 years	S020 1014	\$2299	C109 2110	\$2399

MICROPOLIS						
2.0GB Taurus-2 4221AV	8.5ms	5 years	C109 1228	\$919	C109 1231	\$979
4.3GB Capricorn-4 3243AV	8.5ms	5 years	C109 1229	\$1239	C109 1232	\$1299
9.1GB Scorpio 9 1991AV	12ms	5 years	C109 1230	\$2239	C109 1233	\$2299

hp HEWLETT PACKARD						
1.0GB SureStore 1000S+	9.5ms	5 years	C109 1208	\$339	C109 2114	\$399
2.0GB SureStore 2000LP	8.5ms	5 years	C109 1210	\$749	C109 1211	\$809

IBM						
1080 Deskstar XP	8.9ms	5 years	C109 1237	\$269	C109 1238	\$329

ClubMac Fast and Wide Drives

Seagate						
2.1GB Barracuda 2LP ST32150W	8ms	5 years	C109 2214	\$959	C109 2215	\$1059
4.3GB Barracuda 4 ST15150W	8ms	5 years	C109 2206	\$1399	C109 2208	\$1499
9.1GB Elite 9 ST410800W	11ms	5 years	C109 2220	\$2379	C109 2222	\$2499

Quantum						
2.2GB Capella VP32210SW	8.5ms	5 years	C109 2219	\$799	C109 2217	\$899
4.3GB Grand Prix XP34301SW	8.6ms	5 years	C109 2216	\$1069	C109 2218	\$1169

MICROPOLIS						
2.0GB Taurus-2 4221W	8.5ms	5 years	C109 2223	\$959	C109 2226	\$1059
4.3GB Capricorn-4 3243W	8.5ms	5 years	C109 2224	\$1269	C109 2227	\$1369
9.1GB Scorpio 9 1991W	12ms	5 years	C109 2225	\$2289	C109 2228	\$2409

- ClubMac hard drives include all cables, cards, leds, and brackets necessary for use with the Macintosh you specify. ClubMac formats all hard drives and installs Apple System 7.1 software, SCSI Director, and PowerMerge LE.
- External drives include a Double Shielded, twisted pair 25-SO SCSI cable.
- ClubMac honors all original equipment manufacturers warranties. ClubMac will repair or replace drives at it's discretion. Drives returned within first 30 days of purchase are replaced with a new unit.
- All ClubMac hard drives include a 30 day money back guarantee. your risk is the cost of shipping.

Widest selection of removable storage

REMOVABLE DRIVES

ClubMac®

SyQuest®

09 1222	5.25" ClubMac 200MB Removable*	\$379
09 1221	5.25" ClubMac 88MB Removable*	\$199
09 1224	3.5" ClubMac 270MB Removable*	\$375
09 1005	3.5" ClubMac 105MB Removable	\$189
98 2001	EZ135 135MB Removable	\$234 ⁹⁵

*Cartridge not included

SyQuest Media

Part Number	Media	Qty 1	Qty 10	Qty 20
98 1010	44MB	\$42ea	\$41ea	\$40ea
98 1011	88MB	\$47ea	\$46ea	\$45ea
98 1012	200MB	\$75ea	\$73ea	\$71ea
98 1013	105MB	\$35ea	\$34 ⁵⁰ ea	\$34ea
98 1014	270MB	\$60ea	\$59ea	\$58ea
98 2010	EZ135 Cartridge (135MB)			\$19 ⁹⁹

iomega®

40 1014	Jaz drive with one 1.0GB cartridge	\$599 ⁹⁹
40 1015	Jaz Cartridge (1.0GB)	\$119 ⁹⁹
40 1016	Jaz Cartridge (540MB)	\$69 ⁹⁵
44 1010	Zip drive with 1 cartridge	\$199 ⁹⁹
40 1006	Zip Cartridge (100MB)	\$19 ⁹⁹
40 1011	Zip Cartridge (3 pack)	\$49 ⁹⁵

TAPE BACKUP

ClubMac®

09 5039	ClubMac 2.0GB ThunderDAT Drive	\$749
09 5000	ClubMac 4-8GB DDS-2 DAT Drive	\$899
09 4301	ClubMac 4-8GB DDS-2 SuperDAT Drive	\$1199
09 2042	ClubMac 2-4GB SCSI MiniCartridge Drive	\$499
100 1043	Sony QW3080XLF QIC/WIDE 4GB Cartridge	\$29
109 1236	ClubMac 40GB DLT Subsystem	\$5899
034 1021	1/2 inch media for DLT 2000	\$39
034 1022	1/2 inch media for DLT 4000	\$99

CD-ROM READERS

NEC

024 1062	MultiSpin 6Xe CD-ROM Reader	\$545
024 1070	MultiSpin 4Xc 7 Disc Changer	\$339
024 1011	MultiSpin 3Xp plus CD-ROM Reader	\$379

ClubMac®

109 9546	ClubMac Quad-Speed CD-ROM Drive	\$199
109 9543	ClubMac Classic 2X CD-ROM Drive	\$129
109 9559	ClubMac Dual-Speed CD-ROM Drive	\$88 ⁸⁸

CD-ROM WRITERS

MICROBOARDS of AMERICA

M274 1001	PlayWrite 2X 2000 CDR	\$1245
M274 1002	PlayWrite 2X 2000 CDR w/Gear	\$1289
M274 1005	PlayWrite 2X 2002 CDR	\$1759
M274 1006	PlayWrite 2X 2002 CDR w/Gear	\$1919
M274 1003	PlayWrite 4X 4000 CDR	\$2599
M274 1004	PlayWrite 4X 4000 CDR w/Gear	\$2689

YAMAHA®

Y010 1002	Yamaha 4X CD Recorder w/Toast	\$2799
-----------	-------------------------------	--------

PINNACLE MICRO THE OPTICAL STORAGE COMPANY

P074 1001	RCD-1000 Recordable CD System	\$1429
P079 1001	Toast Upgrade for RCD-1000	\$199

OPTICAL DRIVES

ClubMac®

C109 5022	ClubMac 5.25" Olympus 1.3GB Optical	\$1399
C109 5020	ClubMac 3.5" Olympus 230MB Optical	\$475

'TORAY' Optical Storage Solutions

T140 1001	TORAY Phaserwriter DUAL™ PD	\$649
T140 2001	TORAY PDM-650 Media (ZCAV 650MB)	\$59

PINNACLE MICRO THE OPTICAL STORAGE COMPANY

P074 1005	Apex 4.6GB Optical	\$1589
P074 1006	Apex 4.6GB 1024K Media	\$189
P079 1003	Tahoe 230MB 3.5" Optical Drive	\$659
P074 1004	Sierra 1.3GB Optical Hard Drive	\$1829

MITSUBISHI CHEMICAL AMERICA

M241 1001	MCA 230 Plus Magneto Optical Drive	\$539
-----------	------------------------------------	-------

MEDIA

Verbatim.

DAT MEDIA

V010 1025	Verbatim 60M Cartridge	\$9
V010 1018	Verbatim 90M Cartridge	\$11
V010 1043	Verbatim 120M Cartridge	\$24

OPTICAL MEDIA

V010 1021	Verbatim 1.3GB Optical Cartridge	\$69
V010 1012	Verbatim 230MB Optical Cartridge	\$29
V010 1013	Verbatim 230MB Formatted Optical	\$32
V010 1009	Verbatim 128MB Optical Cartridge	\$22

CD-RECORDABLE

V010 1022	Verbatim CD-R Disc 74min	\$10
-----------	--------------------------	------

ClubMac 200MB Removable

\$379

C109 1222

30 DAY

SHIPPING WITH
ACTIVE
TERMINATION

200MB

SyQuest® EZ135 Drive

\$234⁹⁵

S198 2001

135MB

iomega® Jaz™ Drive

\$599⁹⁹

1040 1014

1GB

ClubMac® DDS-2 DAT DRIVE 4-8GB

\$899

C109 5000

30 DAY

SHIPPING WITH
ACTIVE
TERMINATION

1 Year
Warranty

\$339

N024 1070

NEC

MultiSpin 4Xc 7 Disc Changer

Load 7 Discs at a time!

1 Year
Warranty

ClubMac® ClubMac 5.25" 1.3GB Olympus Magneto-Optical

C109 5022

\$1399

30 DAY

SHIPPING WITH
ACTIVE
TERMINATION

1.3GB

ClubMac®

Source Code
69116

1-800-258-2622

General Sales 24hrs, 7days a week (800) 258-2622
Inquiries and Int'l Sales 24hrs, 7days a week (714) 768-8130
Corporate/Educ Sales M - F 5am - 5pm PST (800) 258-2621

Customer Service M - F 7am - 5pm PST (800) 551-6398
Technical Support M - F 7am - 5pm PST (800) 854-6227
24-Hour Fax (714) 768-9354

\$1999*

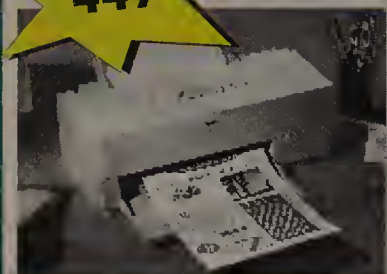
radius 81/110



Monitor not Included.

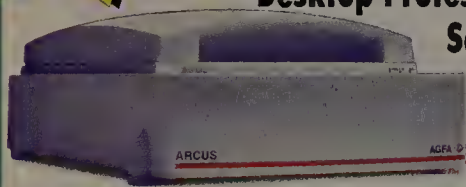
R012 1002

\$449

EPSON
Stylus
Color II

E047 1018

\$1925

AGFA
Arcus II
Desktop Professional
Scanner

A055 1001

\$1179

EPSON
ES-1200c
Scanner

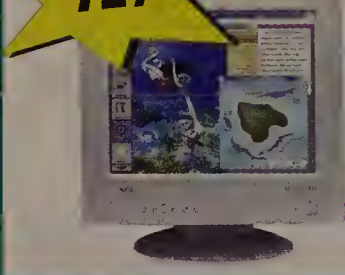
E045 1003

\$298

WACOM
ArtZ II
6 x 8

W010 1028

\$729

NEC
MultiSync
XV17
17" Color Display

N026 1022

Source Code
69116

ClubMac®

7 Hammond, Irvine, CA 92718

CLUBMAC'S "POWERBOOK OFFICE ON THE GO" GIVEAWAY OFFICIAL RULES

NO PURCHASE NECESSARY - To Enter: Complete the "Powerbook Office on the Go" Giveaway entry card located in this magazine and mail it in with proper postage, or by hand printing your name, company name, and address with zip code on a 3" x 5" piece of paper and mailing it in an envelope addressed with proper postage, to: ClubMac's "Powerbook Office on the Go" Giveaway, 7 Hammond, Irvine, CA 92718. Limit one entry per envelope. Entries must be postmarked by January 31, 1996 and received by February 7, 1996. ClubMac is not responsible for lost, late, misdirected, damaged, or illegible entries, not received in time for random drawing. **PRIZE and VALUE:** Grand Prize is a Powerbook 5300/100 (\$2095 value at time of printing, computer prices fluctuate greatly, actual value may differ at time of drawing.) **RULES:** Open only to residents of the U.S. who are 21 years of age or older at time of entry. Employees of Pacific Business Systems, Inc. immediate family members and/or those living in the same household of either are not eligible. Void where prohibited by law. Winner may make no substitution or transfer of prize. All federal, state and local taxes are the sole responsibility of the winner. ClubMac reserves the right to substitute prize of equal or greater value. Acceptance of prize constitutes permission to ClubMac to use winner's name and/or likeness for purposes of advertising and trade without further compensation, unless prohibited by law. For the name of the winner after March 3, 1995, send a separate, stamped self-addressed envelope to: ClubMac "Powerbook Winner", 7 Hammond, Irvine, CA 92718.

COMPUTERS

radius

R012 1002 Radius 81/110 16RAM, 730MB HD, CD-ROM\$1999*

R012 1003 Radius 81/110 16RAM, 2.0GB HD, CD-ROM\$2499*

*Price after \$200 Manufacturers Mail-In Rebate.

MONITORS

radius

R016 1030 Radius PrecisionView 17" Display\$979

R016 1031 Radius PressView 17"SR Display System\$1999

R016 1009 Radius Intellicolor Display/20e\$2099

R016 1033 Radius MultiView 21" Display\$1799

R016 1032 Radius PrecisionView 21" Display\$2299

R016 1034 Radius PressView 21"SR Display System\$3149

NEC

N026 1015 NEC 15" MultiSync XV15"\$449

N026 1006 NEC 15" MultiSync XE15"\$549

N026 1022 NEC 17" MultiSync XV17"\$739

N026 1007 NEC 17" MultiSync XE17"\$999

N026 1009 NEC 17" MultiSync XP17"\$1049

N026 1010 NEC 21" MultiSync XE21"\$1779

N026 1011 NEC 21" MultiSync XP21"\$2159

SONY.

S106 1015 Sony Trinitron CPD-1425\$325

S106 1007 Sony Multiscan Trinitron 17sf\$899

S106 1012 Sony Multiscan Trinitron 20se\$1989

Portrait
Display Labs

P026 1003 Portrait/Pivot 1700 .26 Dot Pitch\$1049

P026 1004 Portrait/Pivot 1700 .28 Dot Pitch\$989

GRAPHIC CARDS

radius

R013 1010 Radius PrecisionColor Pra 24XK\$649

R013 1059 Radius Thunder IV GX 1600\$2699*

R013 1060 Radius Thunder IV GX 1360\$2149*

R013 1061 Radius Thunder IV GX 1152\$1759*

R013 1062 Radius Thunder 24/GT\$1189*

R013 1069 Radius PrecisionColor8/1600 PCICard\$479

R013 1070 Radius Thunder30/1152 PCI Card\$799

R013 1071 Radius Thunder30/1600 PCI Card\$1189

R013 1072 Radius ThunderColor30/1152 PCI Card\$1569

R013 1073 Radius ThunderColor 30/1600 PCI Card\$1999

*Price after \$200 Manufacturers Mail-In Rebate.

Ai TECHNOLOGIES INC.

A143 1010 ATI XCLAIMGA 2MB PCI Video Card\$349

A143 1009 ATI XCLAIMGA 4MB PCI Video Card\$459

A143 1012 ATI 2MB VRAM Upgrade\$235

EA

E103 1001 EAAsycolor24/1152 Graphic Card\$1149

E103 1002 EAAsycolor24/1360 Graphic Card\$1449

E103 1003 EAAsycolor24/1600 Graphic Card\$1949

E103 1004 EAAsycolor 1600/16 PCI Card\$645

VIDEO EDITING

radius

R013 1018 Radius VideoVision Studio 2.5.1\$381

R013 1020 Radius VideoVision Studio Upgrade\$182

R013 1026 Radius Spigot Power AV\$78

TRUEVISION®

T040 1001 Torgo 2000 for NuBus Macintosh\$4195

T043 1001 Torgo 2000 for PCI Macintosh\$4899

*Price after \$100 Manufacturers Mail-In Rebate. Offer ends 12/31/95

PRINTERS

hp HEWLETT
PACKARD

H047 1030 HP LaserJet 5MP Laser Printer\$104

H047 1039 HP DeskWriter 600 InkJet Printer\$29

H047 1033 HP DeskWriter660C InkJet Printer\$39

H047 1041 HP DeskJet 850C InkJet Printer\$54

H047 1042 HP DeskJet 1600CM/PS PostScript Printer\$198

H047 1047 HP DeskJet 340 InkJet Printer\$29

H047 1048 HP Mac Adapter for DeskJet 340 InkJet Printer\$29.9

EPSON

E047 1018 Epson Stylus Color II\$44

E047 1019 Epson Stylus Color Pro\$79

NEC

N027 1001 NEC SilentWriter Model 640\$54

N027 1006 NEC SuperScript 3000M Color Dye-Sub\$69

*Price after \$150 Manufacturers Mail-In Rebate.

SCANNERS

EPSON

E045 1003 Epson ES-1200C Pro-MAC Color Scanner\$117

E045 1007 Epson ES-1200C LE-MAC Color Scanner\$94

E045 1013 Epson ES-1000C Pro-MAC Scanner\$73

AGFA Agfa

A055 1004 Agfa StudioScan\$54

A055 1011 Agfa StudioScan IIsi\$93

A055 1001 Agfa Arcus II\$192

VISIONEER

V025 1002 Visioneer PaperPort\$29

V029 1008 Visioneer PaperPort Vx\$35

hp HEWLETT
PACKARD

H045 1013 HP ScanJet 4s Personal Scanner\$34

H045 1009 HP ScanJet 4c Color/GS Scanner\$94

UMAX®

U010 1044 Umax PowerLook Pra w/ Transporency Adapter\$198

U010 1037 Umax Visto-S8 LE\$65

U010 1038 Umax Visto-S8 Pro\$76

U010 1010 Umax Visto-S6 LE\$53

*Price after \$20 Instant Rebate.

GRAPHICS TABLETS

WACOM

W010 1026 ArtPad II 4x5 with Erasing Pen\$13

W010 1028 ArtZ II 6x8 with Erasing Pen\$29

W010 1029 ArtZ II 12x12 with Erasing Pen\$42

W010 1030 ArtZ II 12x18 with Erasing Pen\$69



NO SURCHARGE!

WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer warranty. **MONEY BACK GUARANTEE:** All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. **RETURNS:** Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused. **ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.**

"PowerBook Office on the GO" Giveaway

Win an Apple PowerBook 5300!

When you fill out and return this card, you get a free subscription to the ClubMac catalog and a chance to win a PowerBook 5300.

No Purchase Necessary to WIN!

Choose the catalog(s) you want

ClubMac ☐

ClubPC ☐

Name: _____

Company: _____

Address: _____

City, State, Zip: _____

Send a FREE Catalog Subscription to a friend:

Name: _____

Company: _____

Address: _____

City, State, Zip: _____

ClubMac ☐

ClubPC ☐

For complete details see the ClubMac advertisement in this magazine. Giveaway is open to U.S. residents, 21 years of age or older. Void where prohibited. Please be sure to affix postage stamp and mail.



Authorized
Catalog Reseller

ClubMac Giveaway Ends January 31, 1996!

Source Code
695300

ClubMae

PLACE
STAMP
HERE
The Post Office will
not deliver mail
without postage.

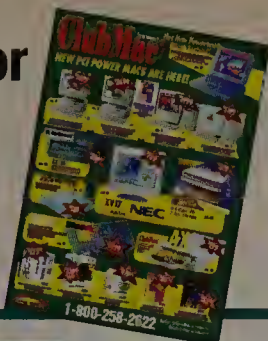
ClubMae

"PowerBook Office on the GO" Giveaway

7 Hammond

Irvine, CA 92718

1-800-258-2622 for
FREE Subscription to
the ClubMac Catalog!



NOW OPEN
24 hours
7 days
a Week!



Authorized
Catalog Reseller

PRINTERS

DAYSTAR

40 1018	DayStar Turbo 040	\$699
40 1040	DayStar 66MHZ PowerCard 601	\$635
40 1057	DayStar 100MHZ PowerCard 601	\$969
40 1043	DayStar 100MHZ PowerPro 601	\$1199
40 1039	DayStar 66MHZ Turbo 601	\$839
40 1048	DayStar 100MHZ Turbo 601	\$1139



20 1002	XLR8 Warp Factor 135	\$99
20 1001	XLR8 Warp Factor 150	\$249

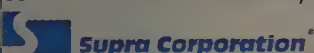
MODEMS

FAST MAC

30 1007	Fast Mac V.34 28.8 Fax/Data Modem	\$139
---------	-----------------------------------	-------



50 1006	TelePort Gold II	\$109
50 1016	TelePort Platinum	\$199
50 1001	PowerPort Mercury for PB Duo's	\$325
50 1002	PowerPort Mercury for PB 5xx	\$325
50 1007	PowerPort Gold for PB 1xx	\$194
50 1017	PowerPort Platinum for PB 1xx	\$325
50 1019	PCMCIA 28.8KBPS Fax/Data/10BaseT Ethernet	\$499
50 1020	PowerPort Platinum PCMCIA Card 28.8KBPS Fax/Data	\$339
50 1018	OneWorld Combo, 2 Line Ethernet	\$1745
53 1020	OneWorld Fax, 1 Line Ethernet	\$1255
53 1021	OneWorld Network Modem, 1 Line Ethernet	\$999



40 1006	SupraExpress 14.4 Plus	\$99
40 1018	SupraExpress 28.8 Plus	\$175
40 1007	SupraFAXModem 28.8 MC	\$219
40 1004	SupraFAXModem 14.4 PB	\$159
40 1008	SupraFAXModem 28.8 PB	\$239

POWER & BATTERIES



80 1027	Back-UPS 200 2 outlets	\$89
80 1028	Back-UPS 280 2 outlets	\$109
80 1029	Back-UPS 400 2 outlets	\$149
80 1030	Back-UPS 450 4 outlets	\$185
80 1031	Back-UPS 600 4 outlets	\$255
80 1032	Back-UPS 900 6 outlets	\$355
80 1033	Back-UPS 1250 6 outlets	\$475
80 1034	Back-UPS Pro 280 280VA UPS 2 outlets	\$149
80 1035	Back-UPS Pro 420 420VA UPS 4 outlets	\$219
80 1036	Back-UPS Pro 650 650VA UPS 4 outlets	\$289

BATTERY TECHNOLOGY INC.

070 1032	Batteries for 5300 and 190 series	\$219
070 1034	SlimPack for 5300 and 190 series	\$219
070 1033	Universal Mini AC Adapter for 5300 and 190 series	\$75
070 1035	Auto Adapter for 5300 and 190 series	\$80
070 1018	SlimPack for 500 series	\$249
070 1019	Auto Adapter for 500 series	\$59
070 1024	High Capacity Battery for Duo's	\$109
070 1023	SlimPack 6x for Duo's	\$269
070 1012	RapidCharger for Duo's	\$95
070 1007	Mini AC Adapter For Duo's	\$49
070 1016	Auto Adapter for Duo's	\$45



040 1003	PowerBook 520-540c Battery	\$119.95
040 1031	PowerBook Duo Hi Capacity Battery	\$89.95
040 1073	Auto Adapter for PowerBook Duo	\$59.95

POWERBOOK CASES

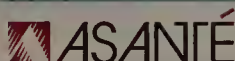
TENBA

T100 1008	Tenbo Slip Case PB-1	\$20
T100 1009	Tenbo NotePok Case C108	\$33
T100 1010	Tenbo Notebook System C109	\$38
T100 1005	Tenbo Brief Pok Case FP	\$55
T100 1001	Tenbo Power Case C113	\$65
T100 1002	Tenbo Computer Traveler Case C413	\$95
T100 1003	Tenbo Computer Traveler Case C416	\$105

KENSINGTON

K010 1006	NoteBook Traveler Executive Case	\$109.95
K010 1007	NoteBook Traveler Tote Case	\$34.95
K010 1010	NoteBook Traveler Deluxe Case	\$73.95

NETWORKING



A120 1010	10BaseT FriendlyNet Media Adapter FN10TA	\$39.95
A120 1041	Thin FriendlyNet Media Adapter FNBNC	\$49.95
A120 1009	10BaseT/Thin FriendlyNet Media Adapter FN10TBNC	\$79.95
A120 1037	10BaseT, FPU socket MCILC-10T	\$89
A120 1022	Thin, FPU socket MCILC-TN	\$109
A120 1023	Thick/10BaseT MCINB-10T	\$109
A120 1025	Thick/Thin MCINB-TN	\$115
A120 1024	Thick/Thin/10BaseT MCINB-THK/TN/10T	\$165
A120 1034	NetExtender (AAUI Hub w/4 RJ45 ports, attached AAUI cable)	\$129
A120 1003	10BaseT Hub (8 RJ45 ports, 1 AUI & 1 BNC) 10THUB/8	\$165
A120 1001	10BaseT Hub (12 RJ45 ports, 1 AUI & 1 BNC) 10THUB/12	\$339
A120 1050	10BaseT Hub (24 RJ45 ports, 1 AUI & 1 BNC) 10THUB/24	\$459
A120 1052	ASANTÉFAST 10/100 PCI Ethernet Cord	\$199
A120 1056	ASANTÉFAST 10/100 Nubus Ethernet Cord	\$299
A120 1053	ASANTÉFAST 100 Base-T 12 port HUB	\$1449



D300 1025	Dayno EasyNet (10Base-T)	\$39
D300 1026	Dayno EasyNet (BNC)	\$39
D300 1021	DaynoPORT E/LC-T 10BaseT	\$89
D300 1038	DaynoPORT E/CS BNC	\$99
D300 1039	DaynoPORT E/CS-T 10BaseT	\$89
D300 1013	DaynaSTAR MiniHub 5 (5 RJ45, 1 RJ45 cross-over)	\$149
D300 1029	DaynaSTAR MiniHub 8 (8 RJ45, 1 RJ45 cross-over, 1 BNC)	\$175
D300 1043	DaynaSTAR MiniHub 8 10BaseT (while supplies last)	\$99
D100 1022	Dayna 14-Port 10BaseT HUB (12RJ45, 1 BNC and 1 AUI)	\$269
D300 1014	DaynaSTAR Hub 24 (24 RJ45, 2 RJ45 cross-overs, 1 BNC, 1 AUI)	\$855
D300 1044	DaynaPORT BlueStreak Ethernet Adapter (10/100BT PCI)	\$199
D300 1045	DaynaPORT BlueStreak Ethernet Adapter (10/100BT Nubus)	\$299
D300 1046	DaynoSTAR BlueStreak 100BaseT Hub (12 RJ45 ports)	\$1615

INPUT DEVICES

KENSINGTON

K010 1016	Kensington Thinking Mouse	\$88.95
K015 1001	Kensington Turbo Mouse 4.0	\$103.95

MacALLY® Peripherals

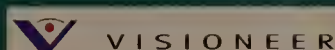
M450 1001	MacALLY Extended 105Key Keyboard	\$49
M450 1004	MacALLY Single Button Mouse	\$19

ADESSO

A035 1011	Adesso TruForm Keyboard	\$89.95
A035 1012	Adesso TruForm Keyboard Deluxe w/pointer	\$109.95

ALTEC LANSING

A160 1002	ACS300 Speaker System w/Subwoofer	\$199
A160 1009	ACS500 Computer Surround Sound System	\$319.95



PaperPort Vx

\$359

V029 1008

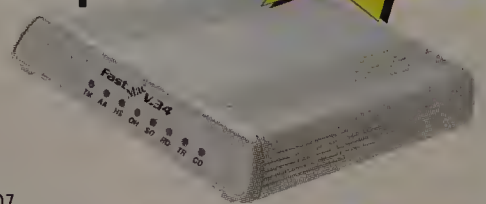


FastMac v.34

28,800 bps Modem

\$139

B030 1007



\$165

8 Port 10BaseT HUB

A120 1003



Back-UPS Pro CPU back-up Power Supply

as low as
\$149



\$219

Batteries for your PB 5300 and 190 series

B070 1032



PowerPort Platinum Pro

\$499

G050 1019



PCMCIA 28,800
Modem/Fax
Ethernet Combo

Source Code
69116

ClubMac®
7 Hammond, Irvine, CA 92718

General Sales 24hrs, 7days a week (800) 258-2622
Inquiries and Int'l Sales 24hrs, 7days a week (714) 768-8130
Corporate/Educ Sales M - F 5am - 5pm PST (800) 258-2621

Customer Service M - F 7am - 5pm PST (800) 551-6398
Technical Support M - F 7am - 5pm PST (800) 854-6227
24-Hour Fax (714) 768-9354

1-800-258-2622 1-800-CLUBMAC 1-800-258-2622



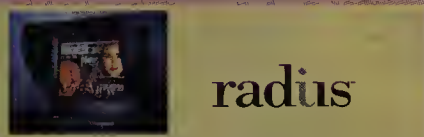
Serving you since 1988

Don't Forget Call Today for
Best Price
CATALOG

LOW BUSINESS RATES
LEASING AVAILABLE

PINNACLE
MICRO
Optical Apex 4.6GB
As low as \$1599 #E7236

Optical Tahoe 230 W/Cartr \$499 #E7228
RCD 1000 w/Toast Software
\$1449 #E7246



Radius PCI Cards
PrecisionColor 8/1600 PCI \$469 #V9114
ThunderColor 30/1600 PCI \$1899 #V9102
ThunderColor 30/1152 PCI \$1499 #V9105
Thunder 30/1600 PCI \$1159 #V9108
Thunder30/1152 PCI \$759 #V9111

Radius NuBus Cards
SpectrumSeries V 24 Bit \$399 #V9180
Thunder 24 GT \$1339 #V9126
Thunder IVGX 1152 \$1817 #V9129
Thunder IVGX 1360 \$2249 #V9132
Thunder IVGX 1600 \$2849 #V9135

Radius Video Editing
Video Vision Studio 2.5.1 \$3349 #V9144
Studio Vision 4GB Array \$4444 #V9186
SpigotPower AV \$739 #V9138
Spigot Pro AV \$1169 #V9192

Radius Monitors
Precision View 17 \$859 #M6606
PrecisionColor17 \$999 #M6603
Press View 17SR \$1899 #M6600
Intellicolor Display 20e \$1999 #M6617
Press View 21SR \$3059 #M6609
PrecisionView 21 \$2159 #M6614

ATI XClaim GA PCI graphic board
Graphic accelerator for PowerMac,
support resolution up to 1600x1200
w/2MB VRAM \$349 #V9165
w/4MB VRAM \$469 #V9162
2 VRAM Upgrade \$229 #V9159

EA PCI Video Board & Monitor
EASycolor 1600/16 PCI Card \$599 #V45699
EA 21" Monitor & Calibrator \$2939 #M6646

UMAX
The Magic of Color
Look Here
New Prices!!
Vista S8 Pro+* \$789 #S8509

PowerLook Pro+ w/ Trans. Adapter* \$1949 #S8519
UC1260 Pro+* \$799 #S8512
Vista S6 Pro+* \$739 #S8507
*Photoshop, Kals PowerTool (SE), KPT PowerPhotos CD,
Pixar (Typestry & 128CD)
Vista S6 LE+* \$569 #S8506
UC1260 LE+* \$739 #S8515
Vista S8 LE+* \$659 #S8511
**Photoshop LE, OmniPage Direct OCR, Corel Professional
Photos CD
Vista T630LE \$499 #S8524
Umax Transparency Adapter for Vista \$399 #S8527
PowerLook Transparency Adapt. \$499 #S8551

All Prices reflect a Cash Discount. Any other
method is 2% to 4% higher. Prices are subject
to change without notice. All Returns are
subject to restocking fee, must be in original
package, condition & needs an RMA#. No
Refunds on Labor or Freight Charges.
We accept Visa, Mastercard, Discover
& American Express.
Not responsible for typographical errors.

International Call: 818-708-6388
Customer Service and Technical
support Call: 818-708-6388
Fax: 818-708-6399

To Order, Call Toll Free
1-800-223-4622
Fax: 818-708-6399

PowerMac 9500

132MHz • 604 RISC • PCI
272MB • 8GB • CD 600i \$14599 #A1222
144MB • 4GB • CD 600i \$9299 #A1225
80MB • 2GB • CD 600i \$6699 #A1228
48MB • 2GB • CD 600i \$5699 #A1232

9500 / 132 MHz
80MB • 2GB • CD 600i
PressView21SR • Keyboard
\$9,949 #A1234

120MHz • 604 RISC • PCI
272MB • 8GB • CD 600i \$14499 #A1201
144MB • 4GB • CD 600i \$9299 #A1203
80MB • 2GB • CD 600i \$6799 #A1206
48MB • 1GB • CD 600i \$5399 #A1209

PowerMac 8500

120MHz • 604 RISC • PCI
16MB • 1GB • CD 600i \$3999 #A1320
48MB • 2GB • CD 600i \$5399 #A1325
80MB • 2GB • CD 600i \$6262 #A1327

8500 Complete System
48MB RAM • 1GB Hard Drive •
CD600i • 17" Monitor •
Extended Keyboard
\$5749 #A1324

PowerMac 7500

100MHz • 601 RISC • PCI
16MB • 1GB • CD 600i \$2727 #A1414
48MB • 2GB • CD 600i \$4299 #A1411

7500 Complete System
24MB RAM • 1GB Hard Drive
• CD600i • 17" Monitor •
Extended Keyboard
\$3869 #A1612

PowerMac 7200

601 RISC • PCI • 90MHz
16MB • 500MB • CD 600i \$1999 #A1399
24MB • 1GB • CD 600i \$2529 #A1403
48MB • 1GB • CD 600i \$3299 #A1406
80MB • 2GB • CD 600i \$4619 #A1409

7200 / 75MHz Complete System
16MB • 500MB • CD • 14" Monitor •
Keyboard \$2349 #A1604
16MB • 1GB • CD • 15" Monitor •
Keyboard \$2666 #A1397

PowerPC PowerBook 5300 Series

603e RISC
5300cs 100MHz 8/500 \$2499 #A1130
5300cs 100MHz 16/750 \$3199 #A1133
5300c 100MHz 8/500 \$3349 #A1121
5300c 100MHz 16/750 \$4092 #A1118
5300ce 117MHz 32/1GB \$6299 #A1115
Duo 2300c 100MHz 8/750 \$3399 #A1106

PowerBooks W/ Motorola 68LC040
190 66/33MHz 4MB RAM/500MBHD \$1599 #A1112
190cs 66/33MHz 8MB RAM/500MBHD \$2149 #A1109

Apple Monitors

Apple Multiple Scan 15" \$469 #M6558
Apple Multiple Scan 20" \$1899 #M6564
Apple Vision 1710AV \$1059 #M6629
Apple MultipleScan 14" \$369 #M6570
Apple MultipleScan 1705 \$799 #M6638

Performa 6200CD • 75MHz • PowerPC •
603 w/FPU 8MB RAM • 1GB HD • 4X Apple CD • Apple 15"
Monitor • Apple Design Keyboard & Mouse • 1.4MB SuperDrive •
14.4Fax/Modem w/ Speaker Phone & Answering Machine
\$1899 #A1190

Address: 6924 CANBY AVE UNIT#104
RESEDA CA. 91335
Hours: Mon-Fri, 8AM to 6PM (Pacific)

FWB Incorporated

PCI Technology
JackHammer Accelerator \$399 #A4417

ExpressPCI-MC MultiChannel \$759 #A4519

ExpressStripe RAID LO \$339 #A4517
ExpressPCI-SC PCI \$349 #A4518
SiliconExpress IVNuBus \$877 #A4515

DAYSTAR
100MHz PowerPro 601 \$1199 #A4500
Quadra 610, 650, 700,
800, 950, Centris 610, 650
(610 needs an adapter)

100MHz Turbo 601 \$1199 #A4509
IICI, IISI, IIVx, IIVi and performa 600
66MHz PowerCard 601 \$629 #A4512
Performa, Quadra, LC470, LC570, 605, 630

Polaroid

Slide Scanner
SprintScan 35 Slide
Scanner \$1469 #S8545

Nikon ELECTRONIC IMAGING

CoolScan External \$1159 #S8497
SuperCoolScan External \$1899 #S8503

MICROTEK

ScanMaker Series
III w/PhotoShop \$1999 #S8444
Trans. Adapt. for III \$139 #S8469
IISPX w/PhotoShop \$649 #S8455
IISP w/ColorIt & OmniPage Direct \$479 #S8456
II w/ColorIt & OmniPage Direct \$379 #S8453
IIHR w/PhotoShop \$729 #S8447
IIHR w/ColorIt & OmniPage Direct \$589 #S8450
IIG w/ColorIt & OmniPage Direct \$239 #S8459

AGFA

The complete picture.
Studio Scan IISI \$899 #S8477
Arcus II \$1899 #S8482

EPSON

Stylus Pro Color Printer \$795 #P3288
ES-1200C Pro Scanner \$1179 #P8533
Transparency unit \$628 #P8537

HEWLETT • PACKARD
HP DeskJet 850C \$549 #P3229
5MP
600DPI, 6PPM, 3MB
\$999 #P3232
4MV
600DPI, 11X17 TRAY
\$2695 #P3235

660c 600X300, 3PPM \$379 #P3223
Deskwriter 600 \$299 #P3220

NEC
XV17 \$729 #M6588
XE17 \$999 #M6591
XP17 \$1042 #M6582
XE21 \$1779 #M6594
XP21 \$2153 #M6585

SONY

MultiScan 15SF1 \$489 #M6438

Sony 17sf \$845 #M6579
Sony 20SE \$1899 #M6576

Apple Printers

Personal LaserWriter 320 \$879 #P3244
LaserWriter 16/600PS \$2249 #P3250
Color LaserWriter12/600PS \$6399 #P3253
LaserWriter 4/600PS \$869 #P3256
Color StyleWriter 2400 \$439 #P3259
Color StyleWriter 2200 \$399 #P3282
StyleWriter 1200 \$259 #P3265
StyleWriter II \$159 #P3279

Megahertz

CruiseCard 28.8 \$279 #F8154
CruiseCard 14.4 \$179 #F8156

MAC MARKET IS MORE THAN JUST
ANOTHER MACINTOSH DEALER. TAKE
LOOK AT OUR GREAT HARDWARE
SELECTION & OUR LOW LOW PRICES.
Compare & Save

MEMORY As Low As

DIMMS
8MB • 64BIT • 168PIN \$299 #M16
16MB • 64BIT • 168PIN \$549 #M16
32MB • 64BIT • 168PIN \$1029 #M16
64MB • 64BIT • 168PIN \$2049 #M16
128MB • 64BIT • 168PIN \$4309 #M16

SIMMS

4MB • 32BIT • 72PIN 70NS \$151 #M16
4MB • 32BIT • 72PIN 60NS \$154 #M16
8MB • 32BIT • 72PIN 70NS \$299 #M16
8MB • 32BIT • 72PIN 60NS \$299 #M16
16MB • 32BIT • 72PIN 70NS \$499 #M16
16MB • 32BIT • 72PIN 60NS \$499 #M16
32MB • 32BIT • 72PIN 70NS \$999 #M16
32MB • 32BIT • 72PIN 60NS \$999 #M16

30PIN Memory

1MB • 8BIT • 30PIN 70NS \$49 #M15
4MB • 8BIT • 30PIN 70NS \$129 #M15
16MB • 8BIT • 30PIN 70NS \$499 #M15

PCI PowerBook Memory

5300
4MB #M1386 \$169 #M1702 \$1
8MB #M1387 \$309 #M1704 \$3
12MB #M1388 \$499 #M1706 \$4
16MB #M1390 \$599 #M1708 \$5
24MB #M1396 \$899 #M1712 \$8
32MB #M1393 \$1189 #M1710 \$11

Newer TECHNOLOGIES

8MB, 64BIT 70NS DIMMS \$359 #M1
16MB, 64BIT 70NS DIMMS \$689 #M1
32MB, 64BIT 70NS DIMMS \$1194 #M1
64MB, 64BIT 70NS DIMMS \$2362 #M1

GCC TECHNOLOGIES

Elite XL 1208 16ppm, 600dpi \$3769 #P3
Elite XL 616 16ppm, 600dpi \$2599 #P32
Elite XL 608 16ppm, 600dpi \$2299 #P32
Elite XL 808 16ppm, 600dpi \$2899 #P32

Portrait \$999

Portrait Display Pivot 1700 (1024 x768) #M65

WACOM ADB Tablet \$399

ARTZ II 12x12 #T3503
ARTZ II 6 X 8 ADB Tablet \$299 #T95

All drives are tested and come with the latest
FWB HDT tool kit.. All drives come with
full factory warranty.
We carry both Internal and External.
External Drives come with SCSI Cable & Terminators

Quantum

INTERNAL
1080MB FireBall(12ms) \$289 #H1111 \$349 #H12
2.2GB Capella(8.5ms) \$679 #H1308 \$739 #H13
4.3GB GrandPrix(8.6ms) \$1019 #H1122 \$1069 #H12

Seagate

BARACUDA SERIES—7200 RPM
INTERNAL
2.5GB \$929 #H1243 \$999 #H12
2.5GB-Wide \$1045 #H1246 \$1099 #H12
4.2GB \$1299 #H1249 \$1359 #H12
4.2GB-Wide \$1379 #H1252 \$1445 #H12

Elite 9 SERIES

9GB \$2059 #H1255 \$2169 #H12

SyQuest

5.25 200 MB Removables W/cartridge \$469 #R61
5.25 88c MB Removables W/cartridge \$349 #R61
3.5 270MB Removables W/cartridge \$468 #R61

GLOBAL VILLAGE COMMUNICATION

TelePort Platinum \$199 #M77889
Gold II \$109 #M98763
Mercury for PB 520,540 \$322 #M34567
(PCMCIA)PowerPort 28.8 PC Card \$359 #F81
(PCMCIA)PowerPort 28.8 PC Card,10Base-T.. \$499 #F81

SupraFAX Modem

SupraExpress 14.4 Plus \$99 #F81
Fax/Modem 28.8 v.34 \$239 #F81
SupraExpress 28.8 Plus \$179 #F81

SONY Tape(DAT) Drives External

SDT 5000 8GB(Compression) 4mm \$899 #D25
Retrospect 2.1(w/purchase of a Drive) \$99 #S10

COMPUTER DISCOUNT WAREHOUSE™

WHY PAY RETAIL? CDW® Sells For Less!

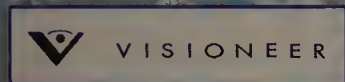


CDW® is an Apple® Authorized Catalog Reseller

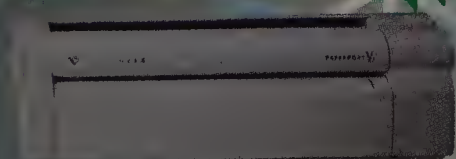


Our catalog features a full line of Apple® Power Macintosh®, Performa® and PowerBook® computers plus Macintosh-compatible peripherals and software.

Call today for a **FREE!** subscription!



NEW!



Visioner PaperPort Vx

The easiest way to get paper into your Mac and put it to work

\$363.89

CDW 60550



NEW!

Apple® Internet Connection Kit

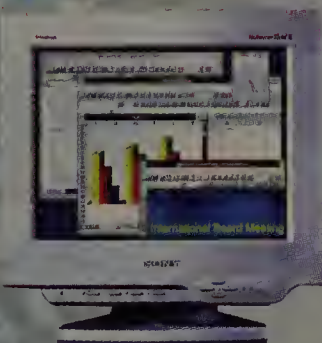
The all-in-one solution for Internet connection

\$43.93

CDW 58671



SONY
NEW!



Multiscan 15sf II

Call CDW® today for the latest information!

NEW!

FastMac™ 28.8 V.34 Fax/Data Modem

\$137.98

CDW 57414

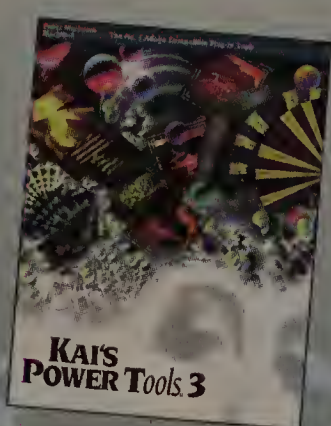
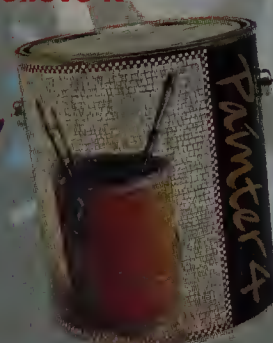


NEW!

Painter V4.0

You "gotta-see-it-to-believe-it"

Call CDW® today for the latest information!

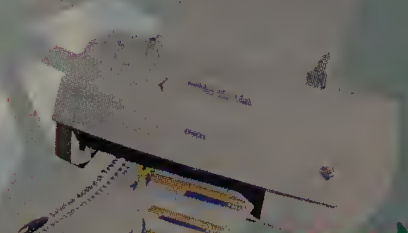


MetaTools Kai's Power Tools 3

\$111.52

CDW 60875

NEW!



NEW!

EPSON® Stylus Color II

High resolution color inkjet printer

\$449.00

CDW 57348

If You Find a Better Price, Call CDW® Before You Buy!

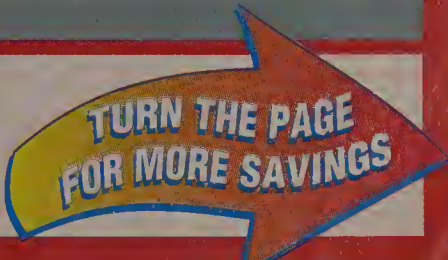
CDW® Sells for Less and Services You Better!

(800) 509-4CDW

MW 1511

©1995 CDW® Computer Centers, Inc.

MacWorld 1/95

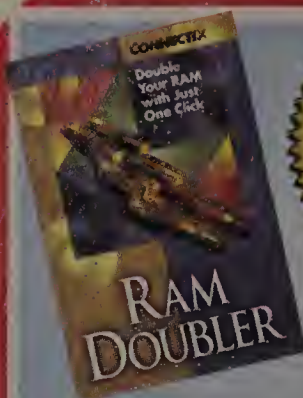


COMPUTER DISCOUNT WAREHOUSE™



COMPUTER DISCOUNT WAREHOUSE™

CDW® — YOUR COMPLETE SOURCE FOR MACINTOSH SOFTWARE



Speed Doubler
& RAM Doubler
Bundle

\$75.49

CDW 60958



RAM Doubler V1.5

Double your RAM
with just one click!

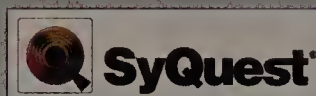
Speed Doubler V1.0

Just click
to accelerate your Mac



**Affordable high-performance
data storage**

- ✓ Capacity: up to 135MB on one formatted 3.5"
- EZ135 cartridge ✓ Average seek time: 13.5ms, up to 2.4MB/second sustained transfer rate
- ✓ Includes one EZ135 cartridge and data-management software ✓ SCSI II interface
- ✓ Small, lightweight design: 2" x 4.8" x 8.45", 1lb. ✓ Reliability (MTBF): 200,000 hours
- ✓ Weight: 2.3lbs ✓ Requires Macintosh System 7.0 or higher ✓ 2 year warranty on drive, 5 year warranty on Syquest data cartridges



\$239.49

CDW 55471

**UMAX®
Vista-S6**

The speed you need
and the quality you expect

- ◆ Resolution: 300 x 600 dpi (optical), 4800 x 4800 dpi (interpolated) ◆ Selectable 24-bit color, 8-bit grayscale or black and white scanning ◆ Single-pass, single light source with cold cathode lamp
- ◆ 256KB I/O buffer for fast data throughput ◆ Native scanning speed: 21 seconds at 200 dpi (color) for a letter-sized document ◆ SCSI-2 interface
- ◆ MACLE2 includes: Adobe Photoshop LE, Wordlinx OCR, Corel Pro Photos CD and MagicMatch color management software ◆ MACPRO2 includes: Adobe PhotoShop V3.0, Kai's Power Tools SE, Kai's Power Photos, Pixar Typestry, Pixar 128 images, Wordlinx OCR and MagicMatch color management software

Vista-S6 MACLE2 **\$563.33** CDW 60229

Vista-S6 MACPRO2 **\$658.64** CDW 60230



XCLAIM GA

True color PCI
graphics accelerator

- ✓ ATI mach64 processor ✓ 2MB or 4MB VRAM versions ✓ 2MB version upgradeable to 4MB with plug-in memory module ✓ Supports resolutions up to 1600 x 1200 ✓ User-definable hot keys control: DeskScape extended desktop up to 2304 x 1740, automatic zoom, instant resolution and color depth switching
- ✓ Five-year world wide warranty



2MB **\$349.91** CDW 55979

4MB **\$458.17** CDW 55980

2MB VRAM upgrade **\$237.97** CDW 56252

Top-Selling Macintosh® Software

Adobe	
Dimensions V2.0	122.68
Gallery Effects Vol. 1	97.63
Home Publisher V2.0	43.70
Illustrator V5.5	375.12
Illustrator V5.5 comp upg.	132.94
PageMaker V6.0	546.32
PageMaker V6.0 5 user pack	2251.61
PageMaker V6.0 upgrade	144.99
Persuasion V3.0.2	241.58
Photoshop V3.0.4	545.78
Photoshop V3.0.4 vers upg	159.71
Premiere V4.0	485.28
Streamline V3.0	123.45
Type Basics	119.72
Type Manager V3.8	38.72

Apple® Fun and Learning CD pack	45.30
Apple® Home Office Collection	89.07

CLARIS

NEW!

Emailer

\$56.56 57391

Apple® Small Business Collection	134.50
Apple System 7.5 upgrade	96.40
Ares Font Hopper	39.01
Ares Fontmonger V1.5	89.50
Avery MacLabel Pro	45.30

Broderbund	
Alien Tales	35.01
Carmen Sandiego/World DLX	39.72
Carmen Sandiego/World DLX CD-ROM	44.41
MYST CD-ROM	48.34
The Amazing Writing Machine	36.38
The Printshop Deluxe CD Ensemble	72.62
Typewriter V2.0	122.12

Caere	
Caere OmniPage Direct V2.0	58.11
Caere OmniPage V5.0	295.68
Caere OmniScan	295.79

Casady & Greene	
Conflict Catcher 3	59.01
Conflict Catcher 3 comp upgrade	31.52
Conflict Catcher 3 vers upgrade	31.58

Claris	
ClarisDraw V1.0	245.64
ClarisOrganizer V1.0v2	46.34
ClarisWorks V4.0	118.22
ClarisWorks V4.0 CPU bundle	64.60
ClarisWorks V4.0 vers/comp upgrade	65.51
Emailer	56.56
FileMaker Pro V2.1	89.69
Impact V1.0	136.40

Connectix	
RAM Doubler V1.5	53.98
Speed Doubler	55.38
Speed Doubler/RAM Doubler bundle	75.49
VideoPhone (software only)	55.59

Corel	
Corel Gallery 1	32.17
Corel Gallery 2	64.82

CA Cricket Graph III V1.53	85.02
----------------------------	-------

Dantz	
Diskfit Direct V1.0	29.42
Retrospect V2.1	137.01

Delrina	
DelrinaFax PRO V1.5.1	52.45
Fax PRO V1.5.1 CPU bundle	24.01

Dataviz MacLink/PC Connection	115.36
Datawatch Virex V5.5	59.47
DCA Crosstalk	112.48
Deneba Canvas V3.5 + CD	253.98

NEW!

SYMANTEC.

Act! V2.5

The #1 contact
management solution

\$148.17 60116

Entertainment	
A.D.A.M. Nine Month Miracle CD	32.42
A.D.A.M. The Inside Story CD	32.45
Berkeley After Dark V3.0	29.01
Berkeley Disney Screen Saver	27.62
Berkeley Star Trek Screen Saver	28.03
Bungie Marathon	36.72
Bungie Marathon CD	37.07
Electronic Arts PGA Tour Golf II CD	39.90
Maxis SimAnt	18.01
Maxis SimCity 2000	38.72
Maxis SimCity Classic	23.67
Paramount Jump Haven CD	25.09
ST:TNG Interactive Tech Manual CD	38.49
Virgin 7th Guest CD	42.17

Fractal Design	
Dabbler V1.0	39.91
Painter V3.1	299.98
Poser V1.0	89.98
Sketcher V1.0	48.10

Farallon Timbuktu Pro V1.0	126.96
Framemaker V4.0	559.82
FWB Hard Disk Toolkit Personal V1.7	49.40

Insignia	
Soft PC V3.0	99.24
SoftPC PRO V3.1	194.79
SoftWindows V2.0	289.23

Intuit Quicken V5.0	41.35
Kent Marsh Folderbolt V1.02	69.99

MacPlay	
Alone in the Dark	34.61
Battlechess	18.13
Caesars Palace	19.63
Frankenstein CD	46.94
Mac 4 Pak CD	24.73
Mac Gift Pack	36.49
Mario Teaches Typing CD	28.81
Peter Gabriel XPLORE 1 CD	46.08
Wolfenstein 3D	36.78

MetaTools (HSC)	
KPT Bryce V1.0	113.76
KPT Convolver V1.0	113.76
KPT Vector Effects V1.0	115.09
Live Picture V2.0	633.09
Power Photos	111.52
Power Photos II	115.87
Kai's Power Tools 3	111.52

Microsoft	
Arcade V1.0	25.57
Bookshelf	49.99
Cinemania 1995 CD	49.10
Encarta 1994 CD	85.26
Excel V5.0	289.96
Excel V5.0 upgrade	112.22
Flight Simulator V4.0	39.11
FoxPro V2.6	89.97
Microsoft Office V4.2.1 CD	438.68
Microsoft Office V4.2.1 vers upg. CD	259.09
Office V4.2.1	438.68
Office V4.2.1 vers upgrade	259.34
PowerPoint V4.0	289.96
PowerPoint V4.0 upgrade	112.86
Project V4.0	417.52
Project V4.0 upgrade	132.83
Word V6.0.1	289.52
Word V6.0.1 vers upgrade	113.76
Works V4.0	86.97

Macromedia	
Director V4.0	792.76
Fontographer V4.1	308.25
FreeHand V5.0 vers upg V4.0 or earlier	148.98
FreeHand V5.0 vers upgrade	375.73
FreeHand V5.5 vers upg V5.0 to V5.5	78.98
Graphic Design Studio bundle	626.00
MacroModel V1.5	174.48
SoundEdit 16 V1.0	252.42

NEW!

PageMaker V6.0

Version upgrade

\$144.99 57782

Novell	
WordPerfect V3.5	119.00
WordPerfect V3.5, CD	119.00
WordPerfect V3.5, vers upgrade	79.00
WordPerfect V3.5, vers upgrade, CD	79.00

NOW Software	
Now Contact/Up to Date V3.5 bundle	86.96
Now Up to Date V3.5	59.58
Now Utilities V5.0	76.30

PRO CD	
Direct Phone	69.87
Home Phone	33.01
Select Phone 1996 WIN/MAC CD	84.59

Personal Training Systems	
Official Guide to Netscape Navigator	25.74
Official Guide to Netscape Navigator CD	25.69

Quark	
QuarkXPress PMac V3.3.1 CD	648.24
QuarkXPress V3.3	569.50

Strata	
Instant Replay V1.0	89.98
Media Paint V1.0	406.37
Studio Pro BLITZ V1.75	862.84
Vision 3D V4.0	143.89

Symantec	
ACT! V2.5	148.17
MacTools Pro V4.0	89.98
Norton Utilities V3.1	93.44
SAM AntiVirus V4.0	64.93
Suitcase V2.1	59.60

Virtual Reality	
Virtual Reality Vistapro V3.0	49.93
Virtual Reality Vistapro V3.0 CD	59.83

If You Find a Better
Price, Call CDW®
Before You Buy
(800)509-4CDW

NASDAQ

BUY WITH CONFIDENCE
CDW® IS A NASDAQ
TRADED COMPANY

TICKER SYMBOL CDWC
D & B rated 5A1
Duns 10-762-7952

No surcharge for credit cards



Credit Card charges are not submitted until time of shipment. Freight is calculated as the carrier's actual freight charge plus insurance and packaging material. The cost of insurance is 0.35% (0.0035) of the order total. Packaging materials will not exceed \$4.00 per 1 package order or \$6.00 per multi package shipment. For your protection we ship only to your verified billing address. Non-defective returns subject to restocking fee. Allow 10 business days for shipping when paying by personal check. Software, chips and other electronic components are not returnable. All pricing subject to change.™. Trademarks of all companies listed in this ad.

**CDW® TELEPHONE
HOURS**

Sales 7:00-9:00 CST Mon-Fri
9:00-5:00 CST Sat.
Tech Support for Customers
8:00-7:00 CST Mon-Fri
9:00-5:00 CST Sat.

Free technical
support for CDW®
customers

WHY PAY RETAIL? CDW® SELLS FOR LESS AND SERVICES YOU BETTER!

MacWorld 1

Monitors NEC

XV15 15" flat square	467.85
XV17 17" flat square	744.26
XE15 15" flat square	575.77
XE17 17" flat square	998.26
XE21 21" flat square	1769.26
XP15 15" flat square	579.68
XP17 17" flat square	1039.13
XP21 21" flat square	2169.43

MAGNAVOX

CM2080 14" .29mm	249.31
CM4015 15" .28mm	375.84
CM4018 17" .28mm	674.57
20CM64 20" .31mm	1087.09

SONY

CPD-1425 14" Trinitron	288.39
15sf 15" Trinitron	489.27
17sf 17" Trinitron	859.14
20se1 20" Trinitron	1929.28
Multiscan TC 20" Trinitron	3158.63

Radius

PrecisionView 17 17"	909.83
PrecisionColor Display/17 17" full pg.	968.81
SuperMatch 17 XL 17"	729.04
SuperMatch 21T XL 21"	2149.63
MultiView 21 21"	1809.34
IntelliColor Display 20e 20"	2139.24
PressView 17 SR 17"	1969.51
PressView 21SR 21"	3193.75

Graphics/Video Boards

ATI

Xclaim GA 2MB PCI	349.91
Xclaim GA 4MB PCI	458.17
Xclaim GA 2MB VRAM upgrade	237.97

Radius

Thunder 30/1600	1147.55
Thunder 30/1152	759.00
ThunderColor 30/1600	1897.64
ThunderColor 30/1152	1499.00
PrecisionColor 8/1600	458.97
Thunder/24 GT	1327.87
Thunder IV GX 1152	1897.45
Thunder IV GX 1360	2284.81
Thunder IV GX 1600	2699.76
PhotoEngine	846.86
VideoVision Studio V2.0	3699.00

CPU Upgrades

DAYSTAR

Turbo 601 66MHz	838.56
Turbo 601 100MHz	1198.56
PowerCard 601	634.80

Newer Technology

PowerClip clock accelerator	114.95
Power MacCache 256KB	174.86
PowerClip+Power MacCache bundle	267.44

Networking

Dayna

Etherprint-T APL Bridge RJ45/AUI	318.50
Etherprint-3 APL Bridge BNC/RJ45/AUI	355.40

Farallon

EtherWave AAUI Transceiver 10BT	96.98
EtherWave AUI Transceiver 10BT	98.60
EtherWave LC-F Adapt. w/FPU 10BT	174.36
EtherWave Printer Adapt. 10BT	254.52
Ether10-T transceiver RJ45/AAUI	37.35
PhoneNET Connector DIN-8	29.22

Communications/Modems

FASTMAC™

FastMac™ 28.8 V.34	137.98
--------------------	--------

Global Village PowerPort fax/modems

Gold 14.4K	187.87
Mercury 19.2K/PowerBook 5XX	319.89
Platinum V.34	325.96

Teleport fax/modems

TelePort Gold II 14.4K	104.71
TelePort Platinum V.34	194.73

Megahertz

14.4K CruiseCard with XJACK	198.78
28.8K CruiseCard with XJACK	298.69

MOTOROLA

Lifestyle 28.8 external	199.99
Power 28.8 external	254.78

PRACTICAL PERIPHERALS

14.4 external mini-tower w/fax	93.48
28.8 V.34 external mini-tower w/fax	179.35
MacClass PCMCIA 14.4	177.14
MacClass PCMCIA 28.8	329.64

Supra

Express 14.4 Plus	97.29
Express 28.8	171.74
288 V.34	209.80
144PB PowerBook	156.93

Robotics

Mac&Fax Sportster 14.4	112.00
Mac&Fax Sportster V.34	199.89

Storage Systems

CD-ROM DRIVES

NEC MultiSpin 6XE	547.55
Sony quad-speed external	312.72

iomega

Zip drive 100MB SCSI external	199.00
100MB Zip disk	19.95
100MB Zip disks, 3 pack	49.95
100MB Zip disks, 10 pack	149.95
Bemoulli Transportable 230MB	454.44
Bemoulli Insider 230MB	419.78

FUJITSU

DynaMQ 230MB 3.5" mag-optical	568.75
-------------------------------	--------

MITAC

200MB external SyQuest drive	499.86
270MB external SyQuest drive	488.22

SyQuest

EZ135 external SCSI	239.49
---------------------	--------

Magnetic media

88MB SyQuest cartridge, 5yr	49.79
105MB SyQuest cartridge, 5yr	59.20
200MB SyQuest cartridge, 5yr	76.14
270MB SyQuest cartridge, 5yr	63.57
90MB Iomega Bemoulli cartridge 5PK	433.06
150MB Iomega Bemoulli cartridge	92.60
230MB Iomega Bemoulli cartridge	99.81
3M 230MB 3.5" optical, Mac format	43.31

Need more disk space? CDW carries Conner, IBM, Maxtor, Micropolis and Seagate SCSI hard drives. Call for details

Input Devices

ALPS

GlidePoint	57.14
Desktop GlidePoint	71.88
GlidePoint Keypad	107.84
GlidePoint Keyboard	114.97

ADESSO

PowerMouse	22.87
Soft Touch Plus extended keyboard	54.67
Tru-Form extended keyboard	89.77
Tru-Form extended keyboard w/pointer	99.98

Connectix

QuickCam digital video camera	93.95
VideoPhone w/Quick Cam	147.31

EPSON

ES-1000C color flatbed scanner	737.77
ES-1200C color flatbed scanner	954.67
ES-1200C ProMAC color flatbed scanner	1122.02

Microtek

ScanMaker II	379.94
ScanMaker IISP	477.53
ScanMaker IISPX	639.38
ScanMaker IIHR	724.72

Nikon

Super CoolScan film scanner	1979.79
Coolscan film scanner	1289.73

Polaroid

SprintScan film scanner	1529.87
-------------------------	---------

UMAX

Vista-S6 MACLE2	563.33
Vista-S6 MACPRO2	658.64
Vista-S8 MACLE2	664.58
Vista-S8 MACPRO2	774.61
PowerLook MACPRO2	1939.73

WACOM

ArtPad II 4"x5" w/Ultra Pen	149.00
ArtZ II 6"x8" w/Ultra Pen	298.59
ArtZ II 12"x12" w/Ultra Pen	417.34

Printers

EPSON

Stylus Color	484.90
Stylus Color II	449.00
Stylus Color Pro	799.00

HEWLETT PACKARD

DeskWriter 600	299.86
DeskWriter 660C	396.87
DeskWriter 850C	539.21
LaserJet 5MP	1044.45
LaserJet 4M Plus	1957.13
LaserJet 4Si MX	4234.22
LaserJet 4MV	2836.09
DeskJet 1600CM	1987.98

TEXAS INSTRUMENTS

microLaser 600	865.10
microLaser Pro 600 PS23	1197.02
microLaser PowerPro 12ppm	1599.76

Memory

Simple Technology memory upgrades

Power Mac 9500 8500 7500 8MB	CALL!
Power Mac 9500 8500 7500 16MB	CALL!
Power Mac 8100 7100 6100 8MB	CALL!
Power Mac 8100 7100 6100 16MB	CALL!
Power Mac 8100 7100 6100 32MB	CALL!
Quadra/Centris 610 Performa 630/631 4MB	CALL!
Quadra/Centris 610 Performa 630/631 8MB	CALL!
Quadra/Centris 610 Performa 630/631 16MB	CALL!
Powerbook 520 520c 540 540c 4MB	CALL!
Powerbook 520 520c 540 540c 8MB	CALL!
Powerbook 520 520c 540 540c 16MB	CALL!
LaserJet 4M Plus 4MB	CALL!
LaserJet 4M Plus 8MB	CALL!
LaserJet 4M Plus 16MB	CALL!

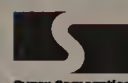
If you don't see it, call!
CDW carries the complete Simple line-up

Get connected with a modem from



SupraExpress™ 288

NEW!



The SupraExpress™ 288 offers fast, dependable 28,800 bps data, 115,200 throughput, and 14,400 bps fax—all for a terrific low price! Complete Macintosh solution includes everything you need for high-speed communications: FAXcilitate™ fax software, Microphone™ data software, and CompuServe Information Manager software and user manuals.

\$171.74 CDW 56815



TelePort Platinum

◆ Data: V.34 (28.8K bps)

◆ Fax: 14.4K bps send and receive ◆ V.42/MNP 2-4 error correction ◆ V.42bis/MNP 5 data compression ◆ Included software: new Power Macintosh native GlobalFax™ V2.5, GlobalFax OCR, ZTerm and America Online ◆ Fax/voice discrimination ◆ Fax/Apple Remote Access discrimination for use with a dedicated phone line

\$194.73 CDW 52875



Global Village PowerPort PC Cards



Gold 14.4K bps data/fax
\$179.87 CDW 60090

Platinum 28.8K bps data/14.4K bps fax
\$336.82 CDW 60095

Platinum Pro 10BT Ethernet
28.8K bps data/14.4K bps fax
\$495.63 CDW 60010

Megahertz

Linking Your Worlds

\$50 Rebate!

CruiseCard PC Card data/fax modem with XJACK®



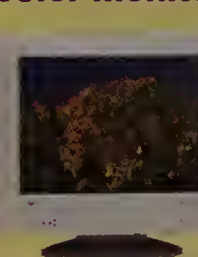
28.8K bps.....**\$248.69*** CDW 58075

14.4K bps.....**\$198.78** CDW 58076

*After \$50 mail-in manufacturer rebate.
Offer good September 1, 1995 through November 30, 1995

NEC

MultiSync XE21 21" color monitor



\$1769.26 CDW 46003

radius

SuperMatch 17 XL 17" color monitor



\$729.04 CDW 41912

Hurry, quantities are limited!

CDW Computer Centers, Inc.
1020 E. Lake Cook Rd.
Buffalo Grove, IL 60089-1900

Visit CDW on the Internet!
<http://www.cdw.com/>

Hardware, Peripherals and Software at Discount Prices

800-509-4CDW

FAX (708) 465-6800

©1995 CDW Computer Centers, Inc. MW1511

Free memory
& peripheral
installation with
CPU purchase

WHY PAY RETAIL? CDW® SELLS FOR LESS AND SERVICES YOU BETTER!

Fax On Demand 1-800-234-0455 ext. 675

Circle 2 on reader service card

MACWORLD January 1996 189

CDW® — YOUR COMPLETE SOURCE FOR HARDWARE & PERIPHERALS

YOUR MAC MAIL-ORDER WAREHOUSE!

For Great Service, Call Toll-Free Today

DIRECT WARE™

1-800-490-WARE

HARDWARE & SOFTWARE SHIPPED ANYWHERE

24-Hr. Fax Order Line 310.793.7175

Fax-on-Request Service 310.793.8606

Customer Service 310.793.4580

World Wide Web Page - <http://www.directware.com>

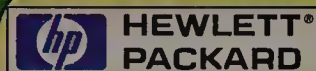
Open 5am to 10pm (PT) M-F

6am-10pm Sat / 9am-6pm Sun

Customer Service hours: 9am to 7pm M-F (PT)

Holidays

HOLIDAY BUYING GUIDE



**HEWLETT
PACKARD**

HP DeskJet 850C
600dpi color inkjet printer

\$529⁹⁹

#167115

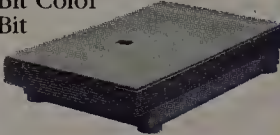
NEW!



HP Scanjet 4C

High performance color scanner

- 600 dpi Optical Resolution (2400 Enhanced Resolution)
- Internal 30-Bit Color
- Internal 10-Bit Grayscale
- One Pass, One Exposure
- 8.5"x14" Platen



600 dpi

#175368

\$969⁹⁹

Includes: Adobe Photoshop LE 3.0 & Caere OmniPage Limited Edition OCR

HP DeskWriter 600

Affordable inkjet printer

NEW!



600 dpi
black ink

\$289⁹⁹

#167117

Add color with the optional, low-cost HP Color Kit

HP LaserJet 5MP

Laser printer for the Mac

- 2MB RAM
- 600dpi
- 3MB RAM
- PostScript Level 2
- 110 scalable fonts

\$995⁹⁹

#139902

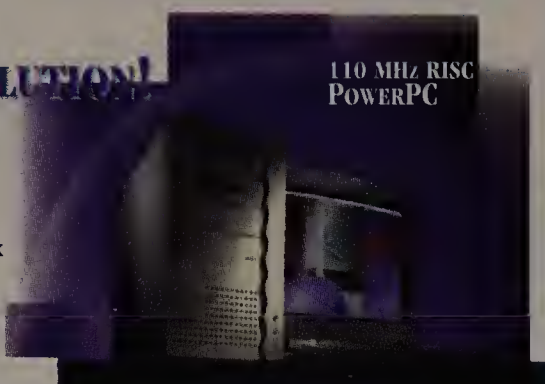


BEST BUY!

THE ULTIMATE MULTIMEDIA SOLUTION!

Radius 81/110

- ▶ 110 MHz PowerPC® 601+ based system
- ▶ 2GB or 730MB Hard Disk
- ▶ 16MB DRAM
- ▶ Built-in Ethernet
- ▶ 16-bit Stereo Sound
- ▶ 3 NuBus Expansion Slots
- ▶ Extended Keyboard and a Mouse
- ▶ FWB CD-ROM Toolkit
- ▶ DB-15 video port for displays up to 17"
- ▶ Two DMA serial (RS-232/RS-422) ports compatible with LocalTalk® and GeoPort cables



110 MHz RISC
POWERPC

Mac OS

16MB RAM/730HD

\$1999⁹⁹*

#178617

*After \$200
Manufacturers
Mail-In Rebate!

Radius 81/110 16MB RAM / 2GB HD#178616

\$2499.99*

BUNGIE
\$44⁹⁹

#173709

DURAND



MacIntax

Will take care of your taxes economically

\$41⁹⁹

#181248



COREL
Gallery2 CD

\$59⁹⁹

#144454

SupraFAX modem
288 v.34

\$209

#109117



MACROMEDIA
FREEHAND 5.0

UPGRADE \$139

#117301

FULL VERSION#117292 \$349.99



OneClick

Do it all with one-click

Customize your own toolbars in a snap

\$76⁹⁹

#181876



CLARIS E-MAILER

Groundbreaking utility program lets you control all your electronic mail, even from multiple on-line service

\$57⁹⁹

#166968

ClarisWorks 4.0

\$49⁹⁹*

#145620

UPGRADE*After \$20 Mail-In Rebate

Full Version ..#145618 \$113.99



UMAX

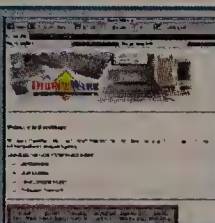
POWERLOOK



- 30-bit 2400dpi
- CCD one-pass scanning
- True 3.0 dynamic range
- Transparency Adapter

\$1895

Includes: Full Photoshop 3.0 #160270



Visit our Web page to win **FREE** Prizes!

World Wide Web Page - <http://www.directware.com>

DOOM II

Unparalleled excitement!

\$44⁹⁹

#170385
3.5" Disks
#164073
CD-ROM

Bonus! **FREE** Tip Sheet!

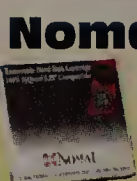


Nomai 88MB

\$39 Syquest Cartridge

#160096

44MB Cartridge 160095 \$34.99



SC-728SXL

17" MultiSync High Res. Monitor

\$699

#109201



#106684

PowerPort Platinum PC Card

\$335

28.8k v.34 data/fax modem for your Mac PowerBook.

*TERMS: FedEx second day shipping is approximately \$5.00 for 5 lbs. or less, \$1.00 per lb. after that plus insurance and packaging material. Cost of freight insurance is .035 of order total. Packing material and handling charge of \$3.00 per order. For your protection we ship only to your verified billing address. Non-defective returns subject to a restocking fee. No returns accepted without an RMA# (call customer service). Most software and memory chips are not returnable, unless covered by a manufacturer return policy. Next day service available most areas. Certain product cannot be shipped outside of U.S. While we do our best to check for errors, occasionally mistakes can occur. Prices and availability are subject to change. Call for current pricing. For faster service, our system recognizes existing customers by phone number to instantly locate prior order records and information. All trademarks used to benefit and without intent to infringe on mark holders.



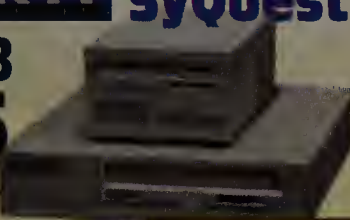
Fax-on-Request Service

Get detailed information on products from APC, Adesso, UMAX, Microtek, Newer, Claris and more! Simply follow directions, and get the facts by fax!

24-Hr. Fax-on-Request Service 310.793.8606

WE'RE NOW YOUR MAC STORAGE SUPERMARKET!

SPIRIT SyQuest Drives

200MB \$385 #177041		270MB \$389 #177042
----------------------------------	---	----------------------------------

2 Year Warranty Features
EXTERNAL MODELS *Cartridge Extra

Great CD-ROM BUNDLES

- Grolier's Encyclopedia
- World Atlas
- How Your Body Works
- Will We Miss Them: Endangered Species

\$59.99 #164258

CD-ROM DRIVE BLOWOUT!

- 600Kb Transfer Rate
- 150ms Avg. seek time
- DCR Active Termination
- Stereo RCA Audio Jacks
- Redline! CD Software
- 2 Year Warranty

\$209 #177043

SPIRIT 4X

External Multimedia Kit 4x.....#177044 \$299

Quantum #1 for MAC!

2GB \$699 #177045

3 or 5 Yr Warranty

- 3.5" Form
- SCSI
- Internal Models

850MB #161447	\$235
1080MB #161449	\$285
2.0GB #177045	\$699
4.0GB #161451	\$989

Seagate Internal SCSI-2 Hard Drives

Hawk 1GB SCSI 3.5 Int	#106213	\$379.00
Hawk 2GB SCSI 3.5 Int	#133039	\$735.00
Hawk 4GB SCSI 3.5 Int	#138676	\$979.00
Barracuda 2GB SCSI HD	#132795	\$899.00
Barracuda 2GB Wide SCSI HD	#106227	\$999.00
Barracuda 4GB SCSI HD	#138679	\$1,225.00

CONNER FilePro

SCSI Internal Hard Drives

1GB	...	\$309	#150825
2GB	...	\$725	#131717
4GB	...	\$999	#131864

TapeStor 4000

Int. 4000	\$499	#114576
Ext. 4000	\$599	#114578

Connectix Doubler Dose!

Both only **\$77.99** #171290

EPSON STYLUS COLOR II

720 dpi color **\$449.99** #172145

Buy CANVAS 3.5

FREE Upgrade to 5.0 **\$259.99** #135193

MacALLY High Quality ADB Mouse

\$19.99 #160091

ADESSO Tru-Form Ergonomic Keyboard

\$89.99 #144780

Truform w/Pointer \$99.99 #172938

VISIONEER PaperPort™ VX

Fits Anywhere and Goes Anyplace!

OCR software included **\$349.99** #132916

INCREDIBLE IMAGE PAK

25,000 TrueType Fonts **\$39.99** #165867

APC Back-UPS

Back-UPS 1250 **\$449** #138375

Back-UPS 600 **\$252** #131606

CASADY & GREENE Conflict Catcher 3

\$59.99 #107950

Version 1 upgrade#107951 \$35.99

FRACTAL DESIGN Painter® 4

Painter® has done it again **\$399.99** #180252

New Power Tools

XLR8 INCORPORATED Warp Factor 135 Accelerator

for the Apple® Power Macintosh 6100, 7100 & 8100 series

6100.....up to 90MHz
7100.....up to 90MHz
8100/80.....up to 90MHz
8100/100.....up to 128MHz
8100/110.....up to 135MHz

\$105 #177039

Warp Factor 150 Accelerator

for the newest Power Macintosh 9500, 8500 & 7500

Up to 150MHz speed!
No tools installation
16 speed dial control

\$259 #177040

BONUS! Includes Speed Doubler!

Specular Infini-D

Sets The Standards For 3-D Animation & Designs

\$399.99 #144802

Ikegami 20" Color Auto-Sync Monitor with Trinitron® CRT

- 31mm dot pitch
- Sony-Mode CRT
- Auto Sync
- Mac or PC

\$1179 #175345

2 Year Warranty First Year Overnight Replacement!

Ikegami 21" Diamondtron ...#175565 \$1649.00

Don't buy an extended warranty on your Mac! (From anyone else!) Even if you purchase your new Apple® PowerMac or Macintosh Performa® elsewhere, we'll give you the **best price** on an ITT extended 4-year in-home protection plan.

If your Mac cost up to \$1200 you pay only **\$99**

If your Mac cost \$2000, pay only **\$144.99!**

Extended warranties can be purchased up to the expiration of your manufacturer's warranty - call for complete program details!

BEST RATES ANYWHERE!

The ITT Advantage

FOR INTERNATIONAL SHIPPING WE RELY ON **DHL** WORLDWIDE EXPRESS®

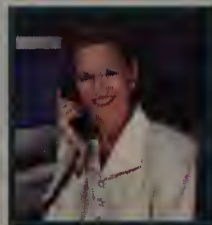
VISA MasterCard American Express Discover

FREE CATALOG SUBSCRIPTION

NAME _____
ADDRESS _____

Mail to: Dept CMU11 P.O. Box 11191 Torrance, CA 90510

INTEREST: MAC ☐ PC ☐ BOTH ☐



Offer Code MWM9512

Fast Delivery!
FedEx
as low as \$5*

"Service is our specialty, always."

DIRECTWARE
HARDWARE & SOFTWARE SHIPPED ANYWHERE

Vendors: for more information on participating in our DirectWare advertising program for Mac and PC products, call Christopher Simmons, Director of Marketing, at 310.793.4533.

Please circle 88 on the Reader Response Card!



MacWA

We carry over 6,000 products for your Mac!



QuarkXPress 3.31

as low as

\$589

FREE†
Extensis
QX-Tools
and
PhotoDisc

† Shipped in promotional packaging.

Ask for item# BND 0760

QuarkXPress 3.31 for Power Mac

Ask for item# BND 0765

* Comes on CD-ROM only—no disks included.

\$659⁹⁵*

Get Illustrator 6.0

FREE!

when you buy
Illustrator 5.5 NOW!

upgrade
for as
low as **\$99**

Ask for item# UPG 0167

Adobe Illustrator

Adobe Illustrator 5.5 Upgrade from 5.0
UPG 0167 (Diskettes & CD-ROM) **\$99****

Adobe Illustrator 5.5 Upgrade from
version 3.2 or earlier
UPG 0168 (Diskettes & CD-ROM) **\$149****

Adobe Illustrator 5.5
BND 0847 (Diskettes & CD-ROM) **\$389**

*Order Illustrator 5.5 after 9/26/95 and get Illustrator 6.0 FREE
direct from Adobe. Shipping charges applicable. Call 1-800-
521-1976 for more information. Product release expected in
late December 1995.

**Serial number required at time of order.

4 Ways to Order:

1. Call 1-800-255-6227
2. FAX: 1-908-905-9279
3. CompuServe: GO MW

NEW! MacWAREHOUSE
is now on the
Internet

Now you can order your favorite
Macintosh products on the 'net!

- ✓ Hundreds of shareware and demo titles for you to download!
 - ✓ Latest information on the newest products!
- <http://www.warehouse.com>

1. Our customer service staff is ready to take your order 24 hours a day, 7 days a week.
2. We accept the following major credit cards: Visa, MasterCard, Discover, AmEx. Your credit card will not be charged until each item is shipped (no surcharge).
3. CT, NJ, and OH residents add applicable sales tax.
4. Shipping charge for orders under 10 lbs. is \$3.00. Orders over 10 lbs. are \$1.00 per pound or fraction thereof.
5. Place your order for "in-stock" items up to 12:00 mid-night(E) (weekdays), and we will ship same day for overnight delivery (barring system failure, etc.).
6. We use Airborne Express, unless UPS Ground offers overnight delivery to your area. (Some areas of the U.S. require more than one day delivery.)

30 DAY MBG

7. Many of our products come with a 30-Day Money Back Guarantee. If, for any reason, you are not completely satisfied with your purchase of any of these items, call our Customer Service Department at 1-800-925-6227 for a Return Authorization Number and a full refund of the original purchase price of the item, excluding shipping and handling charges. Ask our operator at the time of ordering if the product is covered by the Money Back Guarantee. You must return the undamaged product at your expense, including all its packaging and documentation and the blank warranty card if applicable.

All items we sell come with the MacWAREHOUSE 30-Day Guarantee Against Defects. If your product is defective in any way, all you have to do is call our Customer Service Department for a Return Authorization Number. Defective software will be replaced upon receipt of the defective product. Defective hardware will be replaced or repaired at our discretion.

© Copyright 1995 Micro Warehouse, Inc. MacWAREHOUSE® is a division of Micro Warehouse, Inc. MacWAREHOUSE® and MicroWAREHOUSE® are registered trademarks and Data Comm WAREHOUSE and MacSystems WAREHOUSE are trademarks of Micro Warehouse, Inc. Apple, the Apple logo, Mac and Macintosh are registered trademarks of Apple Computer, Inc. Item availability and price subject to change without notice. We regret that we cannot be responsible for typographical errors.

SIMMs

as low as

\$49⁹⁵

per MB

- 72 Pin SIMMs
- PowerBook SIMMs
- 30 & 72 Pin SIMMs

WE'LL INSTALL YOUR SIMMS
FOR ONLY \$29⁹⁵ EXTRA!

Call for details!

SupraFAXModem

288 V.34

**FIVE-YEAR
WARRANTY**

only \$229⁹⁵

Ask for item# DMD 1377

Power User SyQuest- Compatible Cartridges

**5-Year
Warranty!**

as low as
\$39⁹⁵*
each

* Quantity discounts apply.

Ask for item# MED 0174

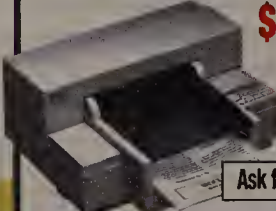


Ask for item# MED 0175

Item #	Description	Qty. 1-4	Qty. 5-9	Qty. 10+
MED 0174	44MB Removable Cartridge	\$49.95	\$44.95	\$39.95
MED 0175	88MB Removable Cartridge	\$54.95	\$49.95	\$44.95

HP DeskWriter 520

\$199⁹⁵*



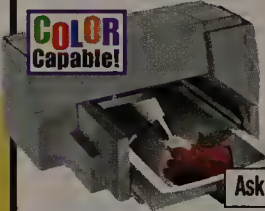
600 x 300dpi
black & white
inkjet printer.

Ask for item# BND 0722

*Price after \$50 mfr's mail-in rebate. Price before rebate \$249.95.

HP DeskWriter 540

\$249!



Color-capable
inkjet printer

Ask for item# INP 0423

Shown with optional \$39.95 color kit. Ask for item # PA 0002

HP DeskWriter 660c

\$449!



600 dpi color
inkjet printer
for the home.

Ask for item# INP 0490

COLOR!

POWER USER

1GB Hard Drive only

\$499!

Ask for item#
BND 0704

EZ 135MB SyQuest Drive

\$219⁹⁵†

Ask for item# DRI 1129

135MB 3.5" as low
Removable **\$19⁹⁵***
Cartridges

*With
quantity
discounts.

Item #	Qty. 1-4	Qty 5-9	Qty 10+
MED 0166	\$24.95	\$22.95	\$19.95*

WAREHOUSE®

Plus a full line of Macintosh™ computers!

**Speed Doubler, RAM Doubler
and Conflict Catcher 3!**

SAVE!

all three
for only
\$99⁹⁵!

Ask for item# MSB 0044

Shipped in promotional packaging.

**Upgrade to Adobe
PageMaker 6.0!**

\$149!*

Includes 2
BONUS!
CD-ROMs!

Ask for item# UPG 0179

Official Upgrade Notification

**lomega 100MB
Zip Drive Deluxe Kit**

- The ultra-compact lomega Zip Drive!
- Five 100MB 3.5" removable cartridges!
- Handy zippered Zip Drive carrying case!

NEW!

Ask for item# BND 0862

**All for only
\$299!**

Zip Drive with one 100MB cartridge only **\$219⁹⁵**
ASK FOR ITEM# DRI 1050.....

FreeHand 5.5
upgrade for as low as
\$79⁹⁵*

The Most
Powerful
Tool For
Design &
Ask for item# BND 0828

FREEHAND 5.5

FreeHand 5.5 upgrade from V 5.0* **\$79⁹⁵**
BND 0828 (CD-ROM)

FreeHand 5.5 upgrade from V 4.0 or earlier* **\$149**
UPG 0198 (CD-ROM)

FreeHand 5.5 for the Mac/Power Mac* **\$399**
BND 0830 (CD-ROM)

* Proof of previous ownership required. Please call for details.



Includes over 500
fonts and 10,000
pieces of clip art!

INSTANT INTERNET KIT!

Includes: 14.4 FaxModem, Earthlink Internet
Access with Netscape Navigator™, 10 FREE
Hours of America Online!

**All for only
\$89⁹⁵!**

Ask for item# BND 1084

*10 free hours for new users only.

Photo/Graphic Edges
Cool edge effects for any photo or layout!

\$179⁹⁵!

Vol.1 Version 2
Ask for item# GRA 1130
Volume 2
Ask for item# GRA 1107
Shipped in promotional
packaging

Publisher: Auto F/X

NEW! Quicken 6.0

Upgrade for only
\$39⁹⁵*

Quicken 6.0

Ask for item# FIN 0290

Quicken DELUXE 6.0 on CD-ROM, includes personalized
financial advice from the experts, investment tools, and more!
Upgrade for only \$49.95**. Quicken Deluxe: Item# FIN 0291

* Price for Quicken 6.0 after \$5.00 manufacturer's m.a. -in rebate for previous owners of Quicken. Price before rebate is \$44.95. Price for first time buyers is \$44.95. Offer expires 1/31/96.

** Price for Quicken Deluxe 6.0 after \$10.00 manufacturer's mail-in rebate for previous owners of Quicken. Price before rebate is \$59.95. Price for first time buyers is \$59.95. Offer expires 1/31/96.

CD-ROM BLOWOUT! UPGRADE BLOWOUT!

MacWAREHOUSE

Macs \$999!

HP PRINTER BLOWOUT! ZIP BLOWOUT!

1-800-255-6227

Product	Item#	Price
100MB lomega Zip Drive		
Ask for item# DRI 1050		\$219.95
QuarkXPress 3.31 for Power Mac		
Ask for item# DTP 0122		\$659.95
FastMac V.34 Fax/modem		
Ask for item# DMD 1397		\$139.95
Power User 4X CD-ROM Drive		
Ask for item# BND 0678		\$219.95
SupraFaxmodem 288		
Ask for item# DMD 1377		\$229.95
288 Platinum Teleport		
Ask for item# DMD 1452		\$209.95
Adobe Photoshop 3.04		
Ask for item# GRA 0916		\$559.00
SyQuest EZ135 Drive		
Ask for item# BND 0717		\$239.95
QuarkXPress 3.31		
Ask for item# DTP 0110		\$589.00
MacInTax 1040 Headstart		
Ask for item# FIN 0297		\$39.95*

*with mail's \$5.00 mail-in rebate.

**Get a Power User's Tool Kit®
FREE!**



The Power User's Tool Kit is packed with powerful programs compiled exclusively for MacWAREHOUSE customers. Some of the programs are shareware, so you can try them free of charge—some authors ask that you pay a small fee (\$8-\$25). The Power User's Tool Kit is FREE when you order from MacWAREHOUSE. You pay only \$2.00 shipping and handling. If you would like the disk, please ask for Item # AAA 0161. All programs work with System 7.

FREE CATALOG!

To order call toll-free 24 hours a day, 7 days a week
1-800-255-6227

FREE CATALOG SUBSCRIPTION! Check the appropriate box(es) to receive your FREE 1-year catalog subscription(s) and mail this coupon to: 1720 Oak Street, P.O. Box 3031, Lakewood, NJ 08701

Name _____

Address _____ Apt. _____

City _____ State _____ Zip _____

(Expect to receive your first issue(s) within 4-6 weeks).

- ☐ Yes, send me my FREE Power User's Tool Kit. Enclosed is my check for \$2.00 to cover shipping & handling.
- ☐ MacWAREHOUSE ☐ MicroWAREHOUSE ☐ Data Comm WAREHOUSE ☐ MacSystems WAREHOUSE

MU0196

Circle 150 on reader service

Serving
you since 1985



TelePort Platinum
\$192

Jazz 1GB
\$569

1.3gb Optical
\$999

8 MB SIMM
\$269

In Control
\$29 w/Free
Quicken

16 MB DIMM
\$549



**PowerBook 190/5300
Memory...Call**

1MB 30 pin	25
4MB 72pin.....	135
8MB 72pin.....	269
16MB 72pin.....	499
32MB 72pin.....	979
8MB DIMMs.....	309
New Powerbooks!	Call

Teleport Platinum \$192

Teleport Platinum	192
Teleport Gold II.....	119
Powerport Gold.....	239
Powerport Mercury PB500	329
Powerport Platinum PC.....	335
Powerport Platinum Pro.....	489

Now Available

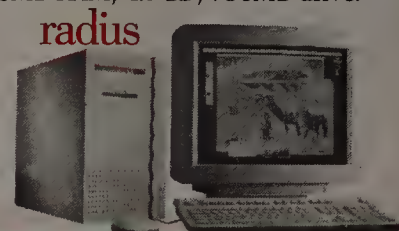
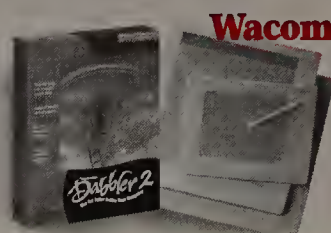
ArtPad II w/Erasing Pen.....	140
ArtPad II w/Dabber and Pen	155
ArtZ II 6x8 w/Ultra Pen	308
ArtZ II 12x12.....	428
ArtZ II 12x18.....	669

**Radius 81/110 \$2899
Includes keyboard**

Radius 81/110™ –
Reliable, flexible Mac OS alterna-
tive for creative professionals.
The Radius 81/110 computer is the
building block for custom publish-
ing, video and multimedia solutions.
16MB RAM, 4x CD, 730MB drive.



Lifetime Warranty



Hard Drives

DRIVES	Int.	Ext.
Seagate 9GB	2199	2299
UltrastarXP 5.3GB	1820	1899
Ultrastar 4.5GB	1589	1689
UltrastarXP 2.2GB	1199	1299
Barracuda 2.1GB	962	1062
Barracuda 1.7GB	862	962
Capella 2.2GB.....	692	792
Deskstar 1GB	329	419
Fireball 1GB	298	398
Trailblazer 850	249	349

All Magic hard drives are preformatted and include 20 MB of shareware and PowerMerge software. External drives also include:

- CharisMac Anubis™ formatting utility
- Double shielded 25/50 cable and power cord
- External terminator
- 30-day money back guarantee
- Autoswitching 40 watt power supply

Removable Media Blowout



128mb cart.....	14
230mb cart.....	29
256mb cart.....	59
1.3gb cart.....	89
DAT tapes	call

44mb Syquest cart.....	42
88mb Syquest cart.....	49
135EZ Syquest cart	19
200mb Syquest cart.....	69
270mb Syquest cart.....	54
ZIP cart 100mb.....	19
Jazz cart 1gb.....	call
CD Recordable Media	10

PCI Video Card

\$10 off!



IMS Twin Turbo 128 PCI video card. Supports MPEG. IMS Twin Turbo.....579
\$10 off w/system purchase

VRAM/Cache



256K/512K VRAM	19/39
PCI VRAM 1mb.....	85
PCI Cache.....	Call
256K Cache.....	129
512K Cache.....	269

Magic High-Performance RAID for Video and Retouching

How It Works

Choose the size of RAID you want. Choose the SCSI II card you want. This will depend on your Mac type (PCI or NuBus), and preferences. Select the RAID controller software which matches your SCSI II card, or your current preferred driver. Finally, buy the RAID case. We'll do the rest.



RAID Drive Mechanisms

18gb RAID ≈ 6.5ms	4398
2 SEAGATE 9GB MECHANISMS	
4.2gb RAID ≈ 7.0ms	1926
2 BARRACUDA 2.1GB MECHANISMS	
3.4gb RAID ≈ 7.0ms	1725
2 BARRACUDA 1.7GB MECHANISMS	
4.4gb RAID ≈ 7.5ms	1384
2 CAPELLA 2.2GB MECHANISMS	
4.4gb RAID ≈ 4.5ms.....	2398
2 ULTRASTAR XP 2.2GB MECHANISMS	
2gb RAID ≈ 5.0ms.....	598
2 FIREBALL 1GB MECHANISMS	

ALL DRIVE MECHANISMS COME WITH
A 30 DAY MONEY BACK GUARANTEE

NuBus/PCI SCSI II Cards

Atto Silicon Express IV.....	887
Atto PCI SCSI	345
Atto PCI Dual.....	779
Jackhammer NuBus	459
Jackhammer PCI	359
QLogic Fast PCI.....	299

RAID Software

Anubis RAID	190
Remus RAID.....	190*
FWB RAID Toolkit.....	140
*WITH JACKHAMMER NuBus	
RAID Case (2 drives)	199
Wide RAID Case (2 drives)	299

Quality Awards



Magic 5.3GB
11/95



Magic
SyQuest 270
2/95



Magic
SyQuest 270
2/95



Magic
SyQuest 200
2/95



Magic 2GB
6/95



Magic 500MB
7/95



Magic
4GB RAID
12/95

Connectix Software

**\$79
Bundle**



Speed Doubler	51
RAM Doubler.....	55
RAM/Speed Bundle.....	79
Disk Doubler	52

Best Way to Speed Up Your Mac!

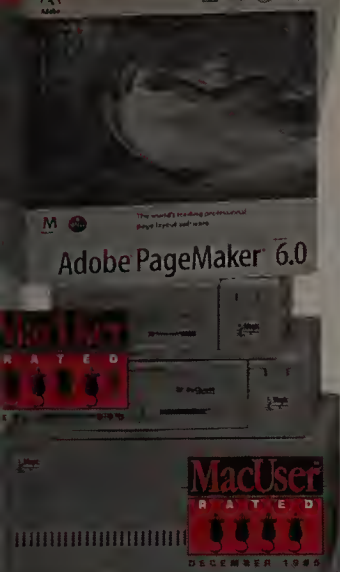
Accelerate your Power Mac. Magic, products for your Mac since 1985.

- Toll-free technical support
- 30 day money back guarantee
- Easy snap-on installation
- No changes to motherboard
- Cooling fan

PowerMac 6100/84MHz	59
PowerMac 7100/84MHz	69
PowerMac 8100/133MHz.....	79

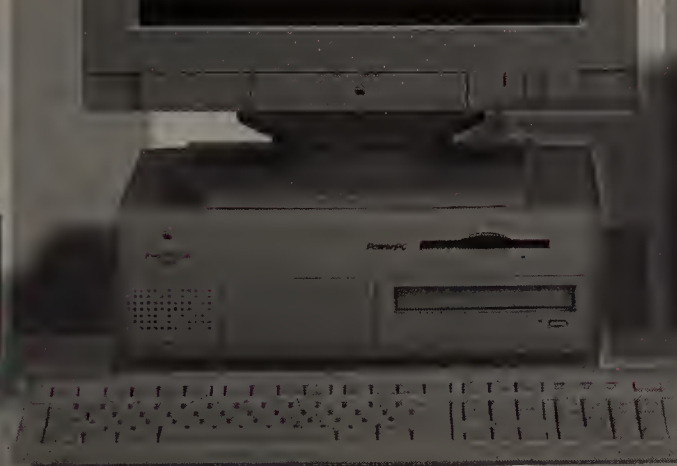


PageMaker 6.0
\$499

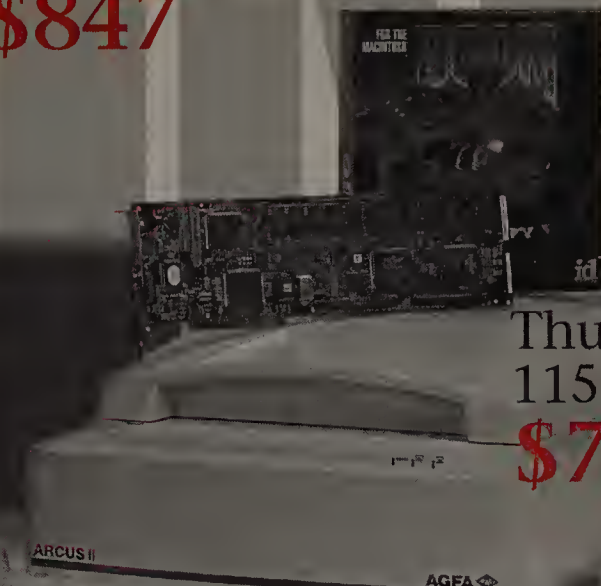


4GB RAID
\$1384

Apple PowerMac
7200/90
8/500/CD
\$1769



NEW!
Apple 1705 Monitor
\$847



Doom II
\$46

Thunder 30/1152
\$769

Agfa Arcus II
\$1925 Includes transparency adapter and full Photoshop

230 Optical \$299*
200MB SyQuest \$299*

Magic SyQuest 270MB Drive.....399*
Magic SyQuest 200MB Drive.....299*
Magic Optical 230 Drive.....299*
270mb Syquest cart 54
200mb Syquest cart 69
230mb Optical cart.....29
* with purchase often cartridges for that drive.

Magic
SyQuest



PowerLook Pro Bundle \$1895

Vista T630 600 x 300 Flatbed 379
Vista S6 600 x 300 Flatbed.....519
Vista S8 800 x 400 629
UC1260 1200 x 600 689
NEW! PowerLook Pro II call
NEW! Mirage.....call
Business Card Reader 219

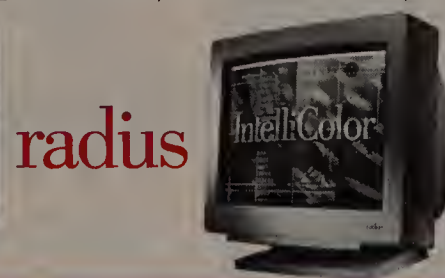


Apple Systems

7200.....from 1649
7500.....from 2649
8500.....from 3989
9500/120 16/1GB/CD.....4379
9500/132 16/2GB/CD.....5149
8100/110 16/2000/CD.....3478

Best Prices on Radius!

Radius Intellicolor 20e.....1975
Pressview 17sr.....2075
Radius Pressview 21T.....2999
ThunderColor 30/1600.....1979
PrecisionColor Pro 24X 599
24XP Pro/24XK Pro.....299/459



Video

DISPLAYS

Apple 17" 1705 847
Apple 17" 1710AV 1095
Apple 17" Monitor.....995
Apple 15" Monitor.....469
Portrait Display Pivot 17.940
Radius PrecisionView 17" 889
Sony 15SF1 489
Sony 17SF 939
Sony 21SE1.....1999

VIDEO CARDS

EasyColor 1600/16.....575
Targa 2000 3899

PCI VIDEO CARDS

ATI Xclaim Video 2MB.....369
ATI Xclaim Video 4MB.....489
Thunder 30/1152 769
Thunder 30/1600 1175
ThunderColor 30/1152 1575

Input/Output

MODEMS

288 PCMCIA Modem.....269
Supra 288 Express 179
Supra v.34 28.8.....211
Supra v.34 PowerBook.....239

DRIVES

Pinnacle Micro CDR.....1399
SyQuest EZ135 229
EZ135 Media from 19
ZIP 100MB.....199
ZIP Media..... from 14

SCANNERS

Agfa Arcus II.....1925
Agfa StudioScan IIsi 899
Apple QuickTake 150.....699
Connectix QuickCam.....99
Kodak DC40 889
Microtek ScanMaker III call
Nikon CoolScan.....1329

Input/Output

Nikon SuperCoolScan...1999
Nikon ScanTouch.....1179
Visioneer PaperPort.....349

PRINTERS

Apple Color 12/600.....6849
LaserWriter 16/600.....1949
Laserwriter Select 360 call
Epson Stylus Pro 824
Fargo Pictura 310.....3895
GCC Elite XL608 2199
HP 880c.....call
TI microLaser 600 849
TI microLaser Pro PS23 1195

REFILLS

Color StyleWriter 1pk Blk 5.95
StyleWriter II 2pk Black.....15.99
2pk High Capacity Blk.....19.99
HP 500/50/60c/310 8pk.45.95
TI Toner.....call

Systems

ACCELERATORS

Daystar
66MHz Turbo for IIsi.....899
100MHz PowerPro w/rebate...1199
PowerCard 601 for Quadra ..671

SYSTEMS

Call for latest prices!
Powerbook 5300 series...Call
Powerbook 190 Call
6100/66 8/500 1329
7100/80 8/700/CD.....1999
8100/100 8/700 2248
8100/110 16/2000/CD .3478
Radius 81/110.....2899
Magic 10baseT Trnscvr.....39

KEYBOARDS

DGR Extended Keyboard...59
Apple Design Keyboard.....87
Extended Keyboard II 156

Memory

DIMMs

4/8MB DIMM.....186/309
16/32MB DIMM ..549/1099
30 PIN SIMMS
1/2MB SIMM.....25/79
4/16MB SIMM.....139/499

72 PIN SIMMS

4/8MB SIMM.....135/269
16/32MB SIMM.....499/979

POWERBOOK 190/5300

8 379
16 699
32 1299

POWERBOOK 2xx

4/8.....199/365
16 629

POWERBOOK 160/165C/180/180C

6/8.....225/299
10 339

POWERBOOK DUO Call

All memory backed by a lifetime warranty.

Shipping: \$5, 5 lbs., 2 Days International Shipping via DHL. Payment: No surcharge on credit card orders. Corporate POs welcome. Tax: Texas residents add 8.25% sales tax. Prices: Items, prices and availability subject to change. Returns: Call for RMA number. Must be in original condition, opened software is non-refundable. Subject to a restocking fee. Original shipping is non-refundable. Apple brand products are not returnable for refund. Bottom Line Distribution cannot be responsible for errors in typography or photography. All brands and product names are trade marks of their respective holders.



Bottom Line Distribution is committed to the needs of the international Macintosh user and reseller. We offer discounted rates with DHL. Delivery times to most countries is 2 to 3 days. We stock 220v versions of most hardware. Dealer inquiries are welcome. Language interpreters are available. Se aceptan pedidos internacionales. Nous acceptons des commandes internationales. Internationale Handlerkonditionen



BOTTOM LINE ON-LINE
Prices ■ Inventory ■ Sales
email: sales@blol.com
See our catalog at:

<http://www.blol.com/bld/>

BOTTOM LINE
DISTRIBUTION

Fax: 1-512-892-4455
Intl: 1-512-892-4070
Cust Svc: 892-4090
<http://www.blol.com>
mail: sales@blol.com
M-F 9-9 | Sat 9-4 **DHL**

1/96
MW

1-800-990-5791 4544 S. Lamar Blvd.
Suite 100
Austin, TX 78745

AWARD WINNING PRODUCTS

DISPLAYS

TWENTY ONE INCH DISPLAYS

Retail \$2599

Radius PrecisionColor Display 21

\$1499*

Supports 1600x1200 pixel resolution

- 1600x1200 to 1024x768 • Flat screen
- Razor sharp .28 dot pitch Ideal solution for professionals requiring maximum screen area, color accuracy, and sharpness.

*With qualifying videocard, accelerator, or computer purchase

SuperMac PressView 21

\$2899

Radius 21 inch Grayscale Display

\$799

RasterOps 21 inch Grayscale Display

\$899

TWENTY INCH DISPLAYS

TWO PAGES FOR THE COST OF ONE!

Retail \$1999

\$999*

Best Screen Uniformity!

While Supplies Last!—Your Choice of...

Digital 20 inch Color Display

- 640x480 up to 1280x1024
- Advanced Micro
- Works with most any Macintosh built-in video
- Non-glare, P22 phosphor, Dynamic-Focus CRT

Radius or RasterOps 20

\$999*

- 1152x870 to 1024x768 • Flat screen
- Shadow Mask Tube • Built in video support

*With qualifying videocard, accelerator, or computer purchase

Radius 20 inch Grayscale Display

\$699

Retail \$2399

\$1699*

The #1 Selling 20 inch Trinitron!

Radius IntelliColor Display 20

Limited Quantities!

- Top rated 20" Trinitron, Best Money Can Buy
- MacUser, MacWorld, MacWeek Editor's Choice
- 1600x1200 to 640x400

*With qualifying videocard, accelerator, or computer purchase

SEVENTEEN INCH DISPLAYS

Retail \$1299

\$699*

Editor's Choice!

SuperMac/E-Machines T1611MR

Limited Quantities!

- High Grade Studio Trinitron Series
- .25mm multi-resolution • Editors Choice
- 1024x768 to 640x480 resolutions

SuperMatch 17T

\$799*

Radius PrecisionColor Display 17

\$CALL

*With qualifying videocard, accelerator, or computer purchase

PIVOT DISPLAYS

\$399

With purchase of video card.

Radius Color Pivot LE

We have cards for SE/30, LC, IIsi, Nubus, and Quadras

Precision Color Pivot

\$599

Grayscale Pivot

\$399

Radius Full Page Display

\$299

VIDEO CARDS

21" RESOLUTIONS

24 BIT

PCI Cards

\$CALL

Radius PrecisionColor 24X

\$599

Radius PrecisionColor Pro 24X

\$699

All Thunder IV's

\$CALL

All Thunder II's

\$CALL

Thunder 24 (DSP available)

\$899

SuperMac Ultima LX

\$1299

with DSP acceleration

RasterOps Horizon 24

\$1499

RasterOps PaintBoard Pro

\$899

RasterOps PaintBoard Turbo XL

\$799

RasterOps Prism GT

\$CALL

8 BIT

Radius PrecisionColor 8XJ

\$399

SuperMac Thunder 8

\$499

SuperMac DoubleColor LX

\$399

SuperMac Spectrum 8/24 PDQ

\$399

20/19" RESOLUTIONS

24 BIT

PCI Cards

\$CALL

SuperMac Spectrum 24 Series V

\$599

Radius PrecisionColor 24XK

\$499

Radius PrecisionColor Pro 24XK

\$599

SuperMac Futura MX

\$499

RasterOps PaintBoard Lightning

\$CALL

RasterOps Prism 24

\$CALL

8 BIT

SuperMac Spectrum 8 Series III

\$199

17/16" RESOLUTIONS

24 BIT

Radius PrecisionColor 24XP

\$199

Radius PrecisionColor Pro 24XP

\$CALL

SuperMac Futura SX

\$299

SuperMac Futura II SX w/Ethernet

\$399

APPLE VIDEO CARDS

Apple 8•24

\$CALL

Apple 8 Bit

\$99

ACCELERATORS

68040 BLOW OUT! from \$299**

Daystar Products

\$CALL

Radius Rocket 33MHz w/FPU

\$399**

Radius Rocket 40MHz w/FPU

\$499**

Stage Two Rocket 40MHz w/FPU

\$899

-includes SCSI II Booster and RocketShare

SCSI II Booster (up to 4x faster)

\$249

PhotoBooster for Rocket

\$299

RocketShare

\$299

UP TO 80% OFF!

VIDEO CARDS

**24 BIT VIDEO
RADIUS/SUPERMAC/APPLE**

Grab 'em while supplies last!

Stop wasting valuable time and money waiting on slow screen redraw! Upgrade your Mac or PowerMac to ACCELERATED PHOTO-REALISTIC 24-bit video performance!

DSP's

Radius PhotoBooster

\$199

Retail \$999

- Twin AT&T 3210 66MHz DSPs
- Accelerates Photoshop Filters
- Up to 10x faster than a Quadra 950
- MacUser Editor's Choice

Photoshop Deluxe CD Edition

\$299

Thunder DSP daughterboard

\$299

Radius PhotoEngine

\$CALL

PRESENTATION

Radius PowerView

\$199

Allows most PowerBooks and the Classic II to support displays and projectors.

SuperMac SuperView

\$299

Similar to Radius PowerView but also supports TV!

SuperMac Simply TV

\$299*

Big screen TV use with LCs, Performas, & Quadras.

**with purchase of computer.*

OPTICAL DRIVE

Maxoptix 1.3gb MO

from \$999

- 1mb Cache (4mb available)
- Accepts Glass and Polycarbonate WORM or MO Cartridges
- Industry-Leading 50,000 hrs MTBF
- FREE External Case
- FREE 1GB Cartridge (\$99 value)



MULTI MEDIA

Spigot II Tape

\$499!

Full Motion Video - Lowest Price Ever!

VideoSpigot Card from \$99*

retail price \$599

VideoVision Studio Upgrade

\$CALL

VideoVision Studio

\$CALL

VideoVision Studio Array

\$CALL

VideoSpigot Nubus/LC/IIIs

\$99*

Spigot and Sound/VideoSpigot Pro

\$299/399

MacRecorder

\$149

Adobe Premiere

\$99**

***With computer or video purchase *With purchase of Premiere*



\$199
from

QUADRA BLOW OUT!

Macintosh Quadra 605/LC 475 4/250

- Lowest price ever! • NEW with 1 year warranty!
- 50/25 MHz 68LC040 processing power
- Built-in video supports up to 21" color monitors
- 4MB RAM with Burst-Mode access (expandable to 36MB)
- MultiMedia ready—Just plug in CD-ROM • Supports stereo sound

• **Call for complete system discount!**

"Never before has Apple offered so much performance for so little money"

"It's hard to go wrong buying one..." — MacWorld

MW ★★★★★

POWER MACS

CALL FOR BEST PRICING ON POWER MAC AND OTHER MAC CPU'S

\$599

Upgradeable
to PowerMac



Mouse and Keyboard extra

PRINTERS

COLOR LASER

QMS Magicolor

- Internal SCSI drive
- Flexible 300 or 600 dpi
- Blazing 33 MHz RISC processor
- PostScript Level 1, 2 and HP/PCL-5
- Only Color Laser choice for envelopes

from **\$3799**



QMS ColorScript 1000

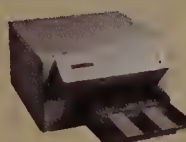
from only **\$2699**

COLOR THERMAL

QMS ColorScript 230

- 11 x 17 full bleed
- Prints transparencies
- Fast 25 MHz RISC processor
- PostScript Level 1, 2 and HP/PCL-5
- 13 MB RAM expandable to 32 MB
- PANTONE approved color output

only **\$2399**



QMS ColorScript 210

from only **\$1599**

HOME/OFFICE

Hewlett-Packard 5mp

\$CALL

Apple Laserwriter Select 360

\$1399

QMS 815/815mr 8ppm

\$599/999

QMS PS825/825mr

\$699/1099

QMS PS 1500 15ppm

\$1499

QMS PS 1700 17ppm

\$2199

QMS PS 2210/2220 11x17

\$1899/1999

Apple OEM laserwriter

\$499

Seikosha SP-2400AP dot matrix

\$179

Star SJ-144MC with 5 cartridges

\$249

Apple Imagewriter/Stylewriters

\$CALL

GCC WriteMove /WriteMove II

\$149/249

Qume Script Ten (white write)

\$1399

Mitsubishi G370-10u 300dpi Color

\$1999

TABLOID LASER

QMS 860 Hammerhead 600-1200 dpi

- Full-Bleed 11"x17"
- PostScript Level 2
- 8ppm heavy-duty Canon engine

\$1999

from only

Hewlett-Packard 4mv

\$CALL



Monday thru Friday 9AM to 8PM CST

Saturday 10AM-4PM Sales Dept. Only

Domestic Sales 800.375.9000

Fax 817.754.2345

Consultants/Dealers 817.754.2131

International Sales 817.754.2120

800/375-9000

CRA Systems, Inc.

300 South 13th St., Waco, TX 76701

Se aceptan ordenes internacionales.

Nous acceptons des commandes internationales.

Internationale Handlerkonditionen.

Prices reflect 2% cash discount.

Not liable for typographical errors.

All shipping charges for COD orders to be

secured by credit card. Dealers and consultants

call for quantity pricing. We ship anywhere.



Mac Systems & Peripherals Sales and Leasing

Immense Inventory of New Macintosh Equipment

Leasing Advantages

Take advantage of possible Tax Savings while Saving Capital for Profitable Ventures. • Increase your Cash Flow • Fixed Payments with \$0 Down and an Option to Purchase • Upgrade at anytime • Increase Productivity and avoid Obsolescence with Warranted Equipment for entire lease term.

*Ask our Lease Dept. for details on a Lease to fit your business needs.



Lease
\$72
per mo

7100 Work Station

PowerMac 7100/80, 8-700 w/CD
15" Multiscan Display
Extended Design Keyboard
Sale Price.....\$2195



Lease
\$117
per mo

8100 Design Station

PowerMac 8100/100, 32-1000 CD
17in Multiscan Display
Extended Keyboard
Sale Price.....\$3550



Lease
\$277
per mo

9150 WWW Server

PowerMac 9150/120, 32 Ram, w/CD
2 - 1 Gig Hard Drives, Dat Drive
Apple Share 4.1, WWW Solution
20" Multiple Scan Monitor
Apple Extended Keyboard
Sale Price.....\$8395

PCI PowerMacs

Custom Config.'s Available

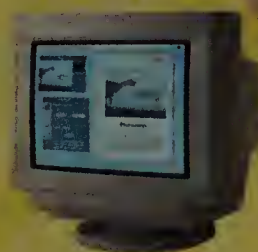
	Buy	Lease
7200/75, 8-500 CD	1520	50
7200/90, 8-500 CD	1699	56
7200/90, 16-700 CD	2115	70
7500/100, 8-500 CD	2418	80
7500/100, 16-1GB CD	2687	89
7500/100, 24-2.4GB CD	3489	115
8500/120, 16-1GB CD	3595	119
8500/120, 24-1GB	3625	121
8500/120, 16-2GB CD	4075	135
9500/120, 16-1GB CD	4189	138
9500/132, 16-2GB CD	4695	155

PowerMac

Call for Current Specials

6100/66, 8-500 CD	1435	48
6100/66 DOS, 16-500 CD	2075	68
7100/80, 8-700 w/CD	1595	53
7100/80, 16-1000 w/CD	2095	69
8100/100, 8-700	2195	72
8100/100, 16-700 w/CD	2615	86
8100/110, 16-2GB w/CD	2925	97
WGS 6150, 16-700 CD	2175	72
WGS 8150, 16-1000 CD	4445	146
w/ Internet WWW Solution		
WGS 9150/16-2000 CD	5366	177

Performa 6200CD	1899	63
-----------------	------	----



Monitors

	Buy	Lease
Apple 14" Multiple Scan	325	11
Sony 14" 1425	349	12
Apple 15" Multiple Scan	425	14
Philips 17B	749	25
Apple 17" Multiple Scan	925	31
Sony 17SF MultiScan	945	32
Radius PrecisionColor 17	899	30
Supermac Pressview 17SR	1899	63
ViewSonic 17GS	735	25
AppleVision 1710AV	1065	36
ViewSonic 20G	1750	58
Radius IntelliColor/20e	1829	60
Apple 20" Multiple Scan	1849	61
Supermac 21•TXL	2155	71

Powerbooks

Priced to Move!!

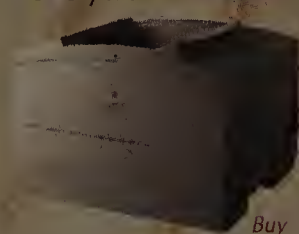


NEW
POWERBOOKS
IN STOCK!!

	Buy	Lease
190/66	call	
190cs/66	call	
520, 4-240	1599	53
520c, 4-240	1925	64
540c, 4-320	2899	96
5300cs/100 8-500	2399	79
5300cs/100 16-750	2995	99
5300c/100 8-500	3189	105
5300c/100 16-750	3885	128
5300ce/117 32-1.1 GB	5696	188
Duo 2300c/100	call	

Printers

Apple StyleWrite II	\$165	
Color LaserWriter 12/600 PS	6199	205
w/Accessory Kit		



	Buy	Lease
LaserWriter 16/600	1849	61
LaserWriter 4/600 PS	815	27
LaserWriter Select 360	1165	38
Personal LaserWriter 320	745	25
Color StyleWriter 2200	349	12
StyleWriter 1200	239	8
GCC Elite XL1208	4269	141
GCC Elite XL616	2599	86
HP 850c	535	18
HP 4MV	2699	89
HP 5MP	995	33

Video Boards

Apple 8100 Video Card	525	17
Radius P'Color Pro 24X	565	19
Radius P'Color Pro 24XK	745	25
Thunder 30/1600	1175	39
Radius Thunder 24GT	1269	42
Thunder IV/GX1152	1799	60
Thunder Color 30/1600	1925	64
Thunder IV/GX1360	2125	70
Thunder IV/GX1600	2499	83
Radius VIDEO VISION v2	3399	112

EA Research (Endorsed by Apple)

EasyColor 24/1600	1699	56
EasyColor 24/1360	1299	43
EasyColor 24/1152	995	33
EasyColor 16/1600 PCI	599	20

Scanners

	Buy	Lease
Microtek IIHR	550	18
UMAX Vista S6	565	19
UMAX Vista S8	675	22
UMAX 1260	699	23
Agfa StudioScan IICI	865	29
HP ScanJet IIIc	899	30
Agfa Arcus II w/transp.	1850	61
UMAX Powerlookw/Trans.	1899	63
Microtek Scanmaker III	2299	76

Hard Drives

	Buy	Lease
SyQuest 200c w/cart	525	17
SyQuest 270 w/cart	465	15
Apple 160 (for Powerbook)	115	4
700 Meg Apple	195	6
1 GB Conner1080	325	11
1 GB Apple	345	12
2.1 GB Quantum Empire	650	21
2.4 GB Seagate Barracuda	825	27
4.3 GB Micropolis (7200)	1425	47
4.3 GB Seagate Barracuda	1495	49
9 GB Barracuda (7200rpm!)	call	
9 GB Seagate Fast SCSI-2	2799	92
9 GB Micropolis	2599	86
Heavy Duty Enclosures	79	3
(w/double-shielded 50-50 pin cable)		

Arrays from FWB

(PCI or NuBus)

SledgeHammer 2000	1549	51
SledgeHammer 4100	2675	88
SledgeHammer 8200	3520	116
SledgeHammer 17400	5625	186

DAT from FWB

(Bundled with Retrospect)

HammerDLT Blank Tape	75	3
HammerDAT4000	1189	40
HammerDAT8000	1345	44
HammerDAT48G*	3199	106
HammerDLT15G	4175	138
HammerDLT20G	5515	181
HammerDLT100G*	8750	289

*Autoloader

CD Recordable & MO

HHB 680 MB blank CDR	11	
(Life Span: 100+ years)		
Pinnacle Travel-Pak	119	4
Pinnacle Tahoe 230	725	24
FWB HammerCD w/Toast	1350	45
Pinnacle RCD 1000	1525	50
Pinnacle 1.3 GB Sierra	2175	72
Yamaha CDE 100 w/Toat	2599	86
Pinnacle 2.6 GB Sierra	4275	141

FREE 14 CDs
w/System Purchase



Over 2600 Apple products to choose from — call for unlisted products

DigiCore

World Wide Web <http://www.digimall.com/digicore/i.html>

Order Toll-Free

800-858-4622

In California
800-858-0311

International & Dealers
818-785-2800

24 hr FaxLine

818-785-3100

DigiCore Inc
15500 Erwin st
van nuys ca 91411

All Major Credit Cards • COD's
Wire Transfers • POs on Approval

Due to publication time constraints prices may vary.
All Prices Reflect CASH DISCOUNT • No Sales Tax EXCEPT in CA.
Restocking Fee on Non-Defective Returns • Not responsible for Misprints
Service Fees are non-refundable • Returns require an RMA Number
Lease Programs Vary — Details are available via Fax or Phone
All products carry a minimum 1 yr manufacturer's warranty



Big Mac
Big Mac
Big Mac

YOU NAME IT WE GOT IT...

OVER 12000 APPLE RELATED PRODUCTS IN STOCK

(800) 761-1999

Any
Custom Config.
Available

POWER MACS

	9/0	8/500CD	16/1 ^{GB} CD	32/1 ^{GB} CD	40/2 ^{GB} CD	80/4 ^{GB} CD	128/4 ^{GB} CD
7200/75	\$1320.	\$1525.	\$2030.	\$2550.	\$2990.	\$4495.	\$5675.
7200/90	1575.	1775.	2365.	2895.	3395.	4725.	6895.
7500/100	2295.	2595.	2785.	3090.	4185.	5490.	7695.
7500/120	2895.	3120.	3395.	3690.	4785.	6090.	8295.
8500/120	3295.	3750.	3895.	4195.	5095.	6675.	8550.
8500/132	4295.	4750.	4895.	5195.	6095.	7675.	9550.
9500/120	3675.	3899.	4295.	4595.	5475.	6799.	8799.
9500/132	3950.	4095.	4575.	4895.	5995.	7165.	9255.
3100/100	2075.	2325.	2825.	3375.	3995.	5550.	7575.
3100/100AV	2375.	2675.	3125.	3695.	4295.	5895.	7950.
3100/110	2495.	2695.	2850.	3450.	4395.	5290.	7990.
7100/80	1600.	1774.	2275.	2795.	3435.	4995.	6995.
7100/80AV	1799.	1974.	2425.	2995.	3635.	5195.	7199.
3100/66	1199.	1375.	1850.	CALL	CALL	N/A	N/A

1MB V-Ram \$99 • 256 Cache Card \$295 • 512-1MB Cache CALL

POWER BOOKS

	8/500	16/750	32/1GB	48/1GB
190/66	1775.	2475.	3195.	3795.
190CS/66	2050.	2675.	3495.	4050.
5300CS/100	2525.	3150.	4050.	4595.
5300C/100	3350.	4099.	5190.	5795.
53/100	2050.	2675.	3495.	4050.
5300CE/117	N/A	N/A	5950.	6595.
520C, 540C, 520, 150 IN STOCK			CALL	
Upgrade Card for 500 Series			CALL	
520 8/240 Special			1395.	

Also Available:
Hewlett Packard

Radius
Apple Printer
Apple Monitor
SyQuest
I Omega
Number 9
A.T.I. • UMax
Agfa • F W B
Global Village
NEC • Atto
E. A. Research
AVID Systems

Memory
Hard Drives
& many more...

PERFORMA

631	8/500CD	1399
638	8/350CD TV	1399
640CD-DOS	12/500CD	1899
5215	8/1GB CD	2095
6116CD	8/700CD	1625
6200CD	8/1GB CD	1875
6205	8/1GB CD	2050
6220	16/1GB CD	1899
6230	16/1GB CD	2575
6300	16/1GB CD	2675

WORKGROUP SERVER

6150/60	8/500 CD (4.0.2)	1995
6150/66	8/500 CD (4.1)	2895
8150/110	16/1GB CD DAT (4.1)	4595
9150/120	16/2GB CD	5650

GOVERNMENT,
SCHOOL,
CORPORATE
P.O. WELCOMED

PARTS

WE CARRY ALL THE APPLE PARTS

9500/8500	Logic Board	1095/899
8100/110	Logic Board	1299
7100/80	Logic Board	995
120/132 MHz	Processor	599/1150
Super Floppy		199
8500/120	0/0 Demo	2545
9500/120	0/0 Demo	2595
Q800/840AV	8/230 Demo	1395/1495
Apple Share 4.0.2		899
P.B. 540C	12/500 M Ref	3495
P.B. 150	4/120	850
Kodak PhotoCD 870 W/Remote		149
Apple 500/700 H.D.		125/150

Our New
Expanded Location

Exchange your old MAC to NEW POWER MAC
Exchange Quadra 800/840AV to 8500 \$2695.

Call for APPLE 3rd party products • All prices reflect a cash discount, any other method of payment is 3% higher. International Orders, Visa, MC & AmEx Welcome • Next Day Shipping for U.S.A. & International. Prices are subject to change w/o notice & limited quantity

1831 PONTIUS AVE. LOS ANGELES, CA 90025 • Tel: (310) 470-7099 • Fax: (310) 470-8099

Circle 195 on reader service card

MACWORLD January 1996 199

WE WILL TRY TO MATCH OR BEAT ANY ADVERTISED PRICE. CALL FOR LATEST PRICING!!

WE ACCEPT PO'S
FROM QUALIFIED FIRMS

M E M O R Y

SECURITY WILL CALL WINDOW NOW OPEN!
NO SURCHARGE FOR MC, VISA AE & DISCOVERL.A. Trade has served the PC
market for 10 years...

MACINTOSH MEMORY UPGRADES

Now we bring our expertise
to the Apple Macintosh user.

YOUR MACHINE	STANDARD	MAX	VIDEO UPGRADE	VIDEO COST	256K/512K CACHE	2MB	4MB	6MB	8MB	10MB	12MB	16MB	32MB	64MB
Apple PowerBook 100 Notebook	2	8					134							
Apple PowerBook 140 Notebook	2	8					122	169						
Apple PowerBook 145 Notebook	4	8					122	169						
Apple PowerBook 145B Notebook	4	8					122							
Apple PowerBook 150 Notebook	4	40					176	179	353		524	14 mg=624	20 mg=885	28 mg=1189
Apple PowerBook 160, 165, 180 Notebook	4	14					129	179	299	389				
Apple PowerBook 165c, 180c Notebook	4	14					129	179	299	389				
Apple PowerBook 170 Notebook	4	8						179						
Apple PowerBook 190, 5300	4	32					189		379		567	719	1469	
Apple PowerBook 520, 520c, 540, 540c Notebook	4	36					169		319			619	1199	
Apple PowerBook DUO 210, 230, 250 Notebook	4	24					179		339		499			
Apple PowerBook DUO 270c Notebook	4	32					179		339		499		20 mg=789	
Apple PowerBook DUO 280, 280c Notebook	4	40					179		339		499			
Apple Macintosh TV	5	8					139							
Apple Macintosh IIfx	4	128					165					729		
Apple Macintosh IISI	2/3/5	17					156		336			556		
Apple Macintosh IIfx & IISI	4	68	512k	59			156		336			556		1580
Apple Macintosh Classic						153								
Apple Macintosh Color Classic	4	10	256k	34		78	168		278					
Apple Macintosh Classic II, LC, LCII	2/4	10	512k	59		78	168		278					
Apple Macintosh LCIII, LC475, LC550, LC575	4	36	256k	34			139					549	1099	
Apple Macintosh LC520	5	36					139					549	1099	
Apple Macintosh LC630	4	36					139					549	1099	
Apple Macintosh IICx	1	128					156					556		2076
Apple Macintosh II, IIfx	1	32					156					556		
Apple Macintosh Plus, SE	1	4				78	156							
Apple Macintosh SE30	1/2	32				78	156		272			556	1112	
Apple Performa 200	2	10				78	156		278					
Apple Performa 400	4	10				78	156		278					
Apple Performa 405, 410, 430	4	10				78	156		278					
Apple Performa 450, 460, 466, 467, 475, 476	4	36	256k/512k	34/68			139		279			549	1099	
Apple Performa 550, 575, 577	5	36					139		279			549	1099	
Apple Performa 600, 600CD	4	68	512k	59			156		328			529		1580
Apple Performa 6110CD, 6112CD, 6115CD (pairs)	8/16	72					279					549	1099	
Apple Performa 6117CD, 6118CD (pairs)	8/16	72					279					549	1099	
Apple Performa 630	4	36					139		279			549	1099	
Apple Centris 610	4	68	512k	59			139		279			549	1099	
Apple Centris 650	4	132	512k	59			139		279			549	1099	
Apple Centris 660AV	4	68					139		279			549	1099	
Apple Quadra 605	4	36	512k	59			139		279			549	1099	
Apple Quadra 610	4	68					139		279			549	1099	
Apple Quadra 630	4	36					139		279			549	1099	
Apple Quadra 650	4/8	132/136					139		279			549	1099	
Apple Quadra 660AV	4	68					139		279			549	1099	
Apple Quadra 700	4	68	512k	59			156					556		1580
Apple Quadra 800 (pairs)	8	136	512k	59			139		279			549	1099	
Apple Quadra 840AV	8	128	512k	59			139		279			549	1099	
Apple Quadra 900	4	256	512k	59			156					556		1580
Apple Quadra 950	8	256	512k	59			156					556		1580
Apple Workgroup Server 60 (pairs)	4	68					139		279			549	1099	
Apple Workgroup Server 80 (pairs)	8	136					139		279			549	1099	
Apple Workgroup Server 95	16/32/48	256					156					556	1112	
Apple Workgroup Server 6150 (pairs)	8	72					139		279			549	1099	
Apple Workgroup Server 8150 (pairs)	16	264					139		279			549	1099	
Apple Workgroup Server 9150 (pairs)	16/24	264					139		279			549	1099	
Apple Power Macintosh 6100/60 (pairs)	8	72	512k	59			139		279			549	1099	
Apple Power Macintosh 7100/66 (pairs)	8	136	512k	59			139		279			549	1099	
Apple Power Macintosh 7200 Catalyst (168 pin)	8	136 1mg	199	59	299/429				299			595	1120	2295
Apple Power Macintosh 7500/100 Tat (168 pin)	8	136 1mg	199	59	299/429				299			595	1120	2295
Apple Power Macintosh 8100/80 (pairs)	8	264	512k	59			139		279			549	1099	
Apple Power Macintosh 6100/66 & 6100/66AV (pairs)	8/16	72					139		279			549	1099	
Apple Power Macintosh 7100/66AV (pairs)	16	136					139		279			549	1099	
Apple Power Macintosh 7100/80, 7100/80AV (pairs)	8/16	136					139		279			549	1099	
Apple Power Macintosh 8100/100, 8100/100AV (pairs)	8/16	264					139		279			549	1099	
Apple Power Macintosh 8100/110 (pairs)	8/16	264	512k	59			139		279			549	1099	
Apple Power Macintosh 8500/120 (Nitro)	8/16	264			299/429				299			595	1120	2295
Apple Power Macintosh 9500/120, 9500/132 (Tsunami)	8/16	264			299/429				299			595	1120	2295
Apple Power Macintosh 9500	8/16	264 1mg	119	59	299				299			595	1120	2295
Apple LaserWriter LS	512k	1				512k=72								
Apple LaserWriter NTR	3	4				79								
Apple LaserWriter NT	2	8							278					
Apple LaserWriter II NTX	2	12					156		330					
Apple LaserWriter II NTX-J	4	12					156		330					
Apple LaserWriter IIfx	2	32										556		
Apple LaserWriter IIg	5/8	32				136						556	1236	
Apple LaserWriter Select 300	512k	4.5				1mg=34	139							
Apple LaserWriter Select 310	1.5	5.5				1mg=44	139							
Apple LaserWriter Select 360	7	16										549		
Apple LaserWriter Pro 600	4	32					139					549	1099	
Apple LaserWriter Pro 630	4/8	32					139					549	1099	
Apple LaserWriter Pro 810	8	32					139					549		
Apple LaserWriter 16/600PS	8	32							289			529	1099	

SIMM MODULES

72 PIN MODULES	30 PIN MODULES
1x32-70 (4MB)\$143	1x8-80 (1MB)\$35
1X32-60 (4MB)\$144	1x8-70 (1MB)\$38
2X32-70 (8MB)\$264	2x8-70 (2MB)\$74
2X32-60 (8MB)\$294	4x8-70 (4MB)\$128
4X32-70 (16MB)\$519	8x8-70 (8MB)\$279
4X32-60 (16MB)\$529	16x8-70 (16MB)\$549
8X32-70 (32MB)\$985	
8X32-60 (32MB)\$987	

OIMMS, 168 Pin

1x64	8Meg	\$ 299
2x64	16Meg	595
4x64	32Meg	1120
8x64	64Meg	2295

CUSTOMER SERVICE & TECHNICAL: OPEN M-F, 9-4 PST

All products brand new & guaranteed • We buy excess inventory
Trademarks are registered with their respective companies.

22825 Lockness Avenue • Torrance, CA 90501

CALL FOR NEW MODELS NOT LISTED

NO SURCHARGE FOR MASTERCARD, AMEX, VISA OR DISCOVER. PURCHASE ORDERS ACCEPTED FROM FORTUNE 2000, GOVERNMENT & INSTITUTIONS. California orders add 8.25% sales tax. Returned orders or ordered wrong parts are subject to a 20% restocking fee. We accept international orders shipped via UPS Air, APO, FPO orders welcome. Customers are expected to pay customs and "other" charges if shipped Int'l. All credit card charges verified for fraudulent use. SORRY, NO REFUNDS AFTER 30 DAYS - EXCHANGES ONLY. If you receive defective merchandise we exchange only—no refunds. We accept MC, VISA, Discover, AE, prepaid orders, purchase orders, wire transfer, C.O.D. (cashiers check) orders, cash & cashiers checks. Orders shipped by UPS, FEDEX must be signed for.

• ALL MANUFACTURER PART #S ARE FOR REFERENCE ONLY
• MINIMUM ORDER \$40.00 • NO REFUNDS ON SHIPPING.

310-539-0019
FAX: 310-539-5844SECURITY WILL
CALL WINDOW
NOW OPENCALL
TOLL FREE1-800-433-3726
(US and Canada)ESTAB.
1985Prices & Availability
Subject to Change
Without NoticeMon-Fri, 8:00 a.m. to 5:00 p.m. PST
Sat. 10:00 a.m. to 12:00 noon

PRICES MAY FLUCTUATE. CALL FOR LATEST PRICING!!



We are the High-end storage configuration Experts. Call us for your solutions on RAID Systems, Video, Networks, and Jukebox applications. All Platforms.

M-F 8-8PM SAT 10-2CST

INT'L: 612-937-9771

FAX: 612-937-6285

"Direct Connections provided excellent technical support." **MacWorld July '95**
 "Direct Connections' array offered the best performance per dollar of the drives tested." **Digital Video Oct. '94**
 "I tried...Direct Connections...configurations without encountering any problems" **Video Pro April '95**
 "This array is the one to beat." **Ken Grey Writer for WIRED, Computer User, MovieMaker, Computer Video, and Digital Video Magazine.**
 "Stick with a vendor such as Direct Connections that understands how to prepare a RAID for desktop video." **MacWorld April '95**



HARD DRIVES

Seagate Elite 9 gig **\$2095.**

514MB - 1200MB

5 YEAR WARRANTY

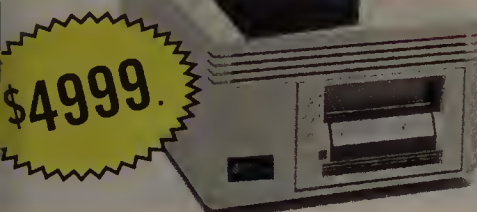
BRAND/MODEL	CAPACITY	SIZE	ACCESS	RPM	INTERNAL	EXTERNAL
FUJITSU M2684s**	530MB	3.5"	13MS	5400	\$ 189	\$ 269
NEC**	730MB	3.5"	11MS	4090	\$ 239	\$ 299
CONNER CFP1080S	1.2GIG	3.5" LP	9MS	5400	\$ 309	\$ 375
FUJITSU M1606s	1.2GIG	3.5" LP	10MS	5400	\$ 355	\$ 419
Seagate ST31230N	1.2GIG	3.5" LP	9MS	5400	\$ 429	\$ 499

1.7GIG - 9GIG

5 YEAR WARRANTY

BRAND/MODEL	CAPACITY	SIZE	ACCESS	RPM	INTERNAL	EXTERNAL
Conner CFP2105S	2.1GIG	3.5" LP	9MS	5400	\$ 765	\$ 835
Fujitsu M2915S	2.1GIG	3.5"	8.9MS	7200	\$ 779	\$ 849
Conner CFP2107S	2.1GIG	3.5" LP	8MS	7200	\$ 859	\$ 929
Quantum Capella	2.2GIG	3.5" LP	8.6MS	7200	\$ 699	\$ 799
Seagate Barracuda	2.5GIG	3.5" LP	8MS	7200	\$ 955	\$ 1025
Seagate BarracudaW	2.5GIG	3.5" LP	8MS	7200	\$ 1039	\$ 1099
Fujitsu M2934S	4.2GIG	3.5"	8MS	7200	\$ 1165	\$ 1235
Seagate Barracuda4	4.1GIG	3.5"	8MS	7200	\$ 1319	\$ 1389
Seagate Barracuda4W	4.1GIG	3.5"	8MS	7200	\$ 1385	\$ 1455
Seagate ST15230N	4.3GIG	3.5"	9MS	5400	\$ 999	\$ 1099
Conner CFP4207S	4.2GIG	3.5"	9MS	7200	\$ 1095	\$ 1155
Conner CFP4207W	4.2GIG	3.5"	9MS	7200	\$ 1145	\$ 1225
Quantum XP34301S	4.3GIG	3.5"	8.6MS	7200	\$ 1069	\$ 1129
Seagate Elite 9	9.0GIG	5.25"	11MS	5400	\$ 2095	\$ 2195
Seagate Elite 9W	9.0GIG	5.25"	11MS	5400	\$ 2295	\$ 2395

TAPE BACK-UP SYSTEMS



\$4999

With 3.0MB/sec sustained transfer, the DLT4000 is perfect for digital video or pre-press with large data files.

2 Year Warranty

INCLUDES TAPE + RETROSPECT SOFTWARE

CAPACITY	MODEL	MEDIA	INTERNAL	EXTERNAL
1GIG	Tandberg	1/4"		\$ 449
2GIG	DC DAT	4MM	\$ 709	\$ 769
4GIG	DC DOUBLE DAT	4MM	\$ 839	\$ 899
4.0-8GIG	Sony 5000 DDS-2*	4MM	\$ 939	\$ 999
7.0-14GIG	Exabyte 8505XL	8MM	\$ 2065	\$ 2125
-30GIG	Quantum DLT 2000XT	1/2		\$ 4195
-40GIG	Quantum DLT 4000	1/2		\$ 5499
-140GIG	Exabyte-10h Library	8MM		\$ 4999
-280GIG	Breeze Hill Library	1/2		\$ 27999



PANASONIC PD DRIVE
A 4 Speed CD ROM and a 650mb optical drive all in one.

\$635

OPTICAL DRIVES

INCLUDES ONE CARTRIDGE

1 YEAR WARRANTY

CAPACITY	MODEL	EXTERNAL
230MB	Fujitsu	\$ 525
1.3GB	NEC	\$ 1299
1.3GB	Sony 4MB Cache	\$ 1825
26GB	Sony Juxebox	\$ 4695

CD RECORDERS

Yamaha 4 speed recorder

Includes 10 Free CDs and Software

- Multimedia
- Archiving
- Distribution
- In-house publishing
- Back-up
- Image Data handling

\$2895



"We recommend the Yamaha CDE 100" -MacWorld Mar. '95

DC 2 speed Recorder/4speed Player with software External \$ 1299
Multi-session Capable. With Optional built-in 1.2GIG hard-drive \$ 1649

Pioneer 6-Disc CD-ROM Changer \$465

Many CD Tower Configurations available. Upto 500 Disks!

"Stick with a vendor such as Direct Connections that understands how to prepare a RAID for desktop video." MacWorld April '95

RAID SYSTEMS

FAST DESKTOP OR SERVER



- 28mb/sec sustained sequential Writes. Tested with MacBench™ on PowerMac 9500.
- 12GIG with 2 PCI accelerator cards **\$ 7799**
- 2.0GIG RAID Level 0. Perfect for highspeed requirements. **\$ 1199**
- This Array is the one to beat!! 4.0 GIG Wide RAID. **\$ 2399**
- 8.0 GIG Fast and Wide. Fast RAID for Video Vision Users. **\$ 2999**

Atto Silicon Express IV	\$ 835
Atto Express PCI MC	\$ 765
Adaptec AHA2940W	\$ 349
SCSI Expander	\$1345

MEDIA

Many Brands to choose from.

MEDIA	128MB	Optical	\$ 15	90M Tape	\$ 10
	230MB	Optical	\$ 25	112M Tape	\$ 15
	1.3GIG	Optical	\$ 99	CD ROM 10 Pack	\$ 79
	SYQUEST 200MB	\$ 76	SYQUEST 270MB	\$ 61	



MAC BARGAIN\$

Buy with Confidence Online from MAC BARGAIN\$.

- **NEW!** For detailed product information e-mail to mac.bargains.info@mzi.com
- **NEW!** To place an order e-mail to mac.bargains@mzi.com
- Over 2500 products in stock

Great Deals!



TelePort Platinum V.34 for Desktop Macs

Only \$194⁹⁸

- True V.34 modem communications
- Super-fast 28.8 Kbps data transmission speed significantly reduces expensive online charges
- V.42bis data compression
- Includes award-winning GlobalFax OCR software
- For more information, e-mail keyword **GLOBALPLAT288**

Global Village #01155

Stylus COLOR II Ink Jet Printer

- True black, laser-quality text
- 720x720 dpi photo-quality color
- Prints on plain paper, envelopes and EPSON's premium coated glossy papers and transparencies
- Prints up to 4 pages per minute in black
- For more information e-mail keyword **STYLUSCOLORII**

Epson #20670

Precision View 17"

- High performance, high resolution 17" display
- 25 stripe-pitch Trinitron tube
- 25mm Aperture Grill pitch
- Six preset resolutions (from 640x480 at 67Hz up to 1024x768 at 75Hz)
- MPR II and Energy Star compliant
- For more information, e-mail keyword **RADIUSVIEW17**

Radius #92647



Only \$999

ACI US		
94322	4D Chart 1.0	\$214.98
96355	4D First 1.2	\$94.98
99044	4D Server 1.2 Version Upgrade	\$148.98
88882	4th Dimension 3.5	\$679.98
88883	4th Dimension 3.x -3.5 Vers. Upgrade	\$224.98
Adobe Systems		
89675	Acrobat Exchange 2.1	\$128.98
89677	Acrobat 2.1 for Workgroups	\$999.98
89676	Acrobat Pro 2.1	\$389.98
06263	Dimensions V2.0	\$121.98
95314	Fetch V1.2 Single-User	\$93.98
92217	HomePublisher V2.0 Deluxe CD	\$46.98
05808	Illustrator V5.5 Upgr 3.5	\$98.98
99491	Illustrator V5.5 3.5" & CD	\$364.00
91255	Adobe PageMaker 6.0 Upgrade	\$139.98
91256	PageMaker V6.0 Mac/PowerMac	\$545.00
88414	PageMill 1.0	\$98.98
91618	Persuasion V3.0 Mac/PowerMac	\$249.98
04042	Photoshop 3.0.4	\$544.98
95341	Photoshop 3.0.4 Upgrade	\$159.98
04670	Premiere V4.2	\$488.98
91600	Print Central 4.0	\$438.98
92218	SuperPaint V3.5 Deluxe CD	\$62.98
03950	Type Dn Call 4.0	\$42.98

Connectix RAM Doubler
#96785
Only \$53⁹⁸

Aladdin		
98501	SitComm	\$61.98
05827	StuffIt Deluxe 3.5	\$69.98
Alsoft		
00618	DiskExpress II 2.2	\$42.98
04543	Master Juggler 1.9	\$31.98
Avid Technology		
98489	Elastic Reality for Power Mac	\$228.98
93894	VideoShop 3.0	\$239.98
03552	Avery MacLabel Pro	\$49.98
Best!Ware		
04712	MYOB Accounting V5.0	\$78.98
99042	MYOB Accounting V5.0 w/Payroll	\$132.98
Caere		
05161	OmniPage Direct V2.0	\$58.98
01005	OmniPage Pro V5.0	\$448.98
91304	OmniPage Pro V5.0 Upgrade	\$148.98
Casady & Greene		
91300	Conflict Catcher 3	\$59.00
Clarix		
18052	ClarixDraw	\$188.98
93424	ClarixWorks V4.0	\$117.98
03478	FileMaker Pro V2.1	\$88.98
04140	MacProject Pro V1.5	\$359.98
06525	MacWrite Pro V1.5	\$88.98
Connectix		
05646	PowerBook Utilities	\$54.98
96785	RAM Doubler v1.52	\$53.98
90375	Speed Doubler	\$53.00
90149	RAM/Speed Doubler Bndl	\$79.00
Corel		
95331	Corel GALLERY 1	\$31.98
92234	Corel Library 1	\$699.98
Call	Corel Professional Photo CD's - Call	\$16.98
00203	Cricket Graph III	\$84.98
Dantz		
04722	DiskFit Pro V1.1	\$68.98
02586	Retrospect V3.0	\$146.98
04194	Retrospect w/ Remote 10-Pack	\$244.98
Datawatch		
02077	Virex V5.6	\$59.98
Dataviz		
96907	MacLink Plus/PC Connect 8.0	\$113.98
96908	MacLink Plus/Translators Pro 8.0	\$93.98
Delrina		
97921	FaxPro for Mac V1.5	\$53.98
DeltaPaint		
04805	DeltaGraph Pro 3.5	\$124.98
Entertainment		
94569	11th Hour, The-Virgin	\$54.98
99236	7th Guest, The-Virgin	\$41.98
02785	After Dark v3.0-Berkeley Systems	\$26.98
92863	Arc of Doom CD-SunStar Publishing	\$38.98
99575	BattleChess Enhanced-MacPlay	\$44.98
93809	Carmen Sandiego/USA Dlx CD-Broderbund	\$45.98
97732	Carmen Sandiego/World Dlx CD-Broderbund	\$49.98
97122	Castles II: Siege & Conquest-MacPlay	\$35.98
06848	Civilization-Microprose	\$42.98
93544	Corpse Killer-Acclaim	\$47.98
92035	DOOM II-GT Interactive	\$46.98
06394	Falcon MC-Spectrum Holobyte	\$40.98

06486	Lemmings-Psychosis	\$32.98
96284	Marathon-Bungle Software	\$37.98
90082	Millie's Math House CD-Edmark	\$39.98
04053	More After Dark v1.0-Berkeley Systems	\$22.98
05518	Music Time v2.0-Passport Designs	\$94.98
97733	MYST-Broderbund	\$49.98
93543	Night Trap-Acclaim	\$47.98
97149	Peter Gabriel XPLORA 1-MacPlay	\$44.98
00473	PGA Tour Golf II-Electronic Arts	\$37.98
95423	Prince of Persia II-Broderbund	\$34.98
90574	Sammy's Science House CD-Edmark	\$39.98
04721	SimAnt-Maxis	\$19.98
98222	SimCity 2000-Maxis	\$37.98
99216	SimCity Classic-Maxis	\$22.98
94267	Simpson's Screen Saver-Berkeley Systems	\$27.98
95426	Star Trek 25th Anniversary CD-MacPlay	\$41.98
05934	Star Trek Screen Saver-Berkeley Systems	\$34.98
06519	The Disney Screen Saver Collection-Berkeley	\$26.98
90042	The Playroom CD-Broderbund	\$39.98
97731	The Tortoise and the Hare CD-Broderbund	\$34.98
90573	Thinkin' Things II-Edmark	\$39.98

Fractal Design		
00665	Fractal Design Painter 4	\$359.98
93967	Fractal Design Painter 4 Upgrade	\$124.98
91289	Fractal Design Poser	\$128.98

Frame Technology		
06994	FrameMaker V5.0 Upgrade	\$198.98
03582	FrameMaker V5.0	\$552.98

Farallon		
96800	Timbuktu Pro Single Pack	\$129.98
96802	Timbuktu Pro 10-Pack	\$659.98
96801	Timbuktu Pro Twin-Pack	\$199.98

GDT Software		
00642	PowerPrint 3.0	\$93.98
94262	StyleScript	\$94.98

90060	IdeaFisher V6.0	\$49.98
-------	-----------------	---------

Globalink		
95417	French Assistant	\$47.98
95416	German Assistant	\$47.98
95415	Italian Assistant	\$47.98
95418	Spanish Assistant	\$47.98

Insignia		
03664	Access PC V3.0	\$79.98
06786	RapidCD	\$44.98
98475	SoftWindows 2.0 for Power Mac CD-ROM	\$299.98
89308	SoftWindows 2.0 for Power Mac Upgrade CD	\$124.98
94287	SoftWindows for Mac	\$275.00

Intuit		
06163	MacInTax 1040 Headstart '95 w/\$5 rebate	\$39.98
93222	QuickBooks 3 for Mac w/\$35 Upgrd rebate	\$119.98
89653	QuickBooks Pro for Mac w/\$50 Upgrd rebate	\$179.98
93685	Quickend Deluxe CD 6.0 w/\$10 Upgrd rebate	\$39.98
04230	Quickend 6 w/\$5 Upgrd rebate	\$39.98

JIAN		
04257	BizPlanBuilder 5.0	\$78.98
01045	EmployeeManualMaker 3.0	\$91.98
04996	LivingTrustBuilder 4.0	\$51.98
06827	Publicity Builder 2.0	\$84.98

Kent Marsh		
94266	Folderbolt Pro	\$88.98
89686	Folderbolt Pro/NightWatch II Bndl	\$119.98
04981	NightWatch II	\$69.98

Now Utilities 5.0
#04191
Only \$75

Leader Technologies		
05690	PowerMerge 2.5	\$78.98

Light Source		
88808	Colortron II w/ColorDrive	\$1,154.00
00657	Ofoto 2.0	\$187.98

Latus		
00507	1-2-3 V1.1	\$274.98

Macromedia		
92266	Director Multimedia Studio	\$1,379.00
04537	Fontographer V4.1	\$328.98
94180	FreeHand 5.5	\$385.98
92267	FreeHand 5.5 Competitive Upgrade	\$148.98
94182	FreeHand 5.0 to 5.5 Upgrade	\$148.98
89780	FreeHand 4.0 or Earlier to 5.0 Upgrade	\$148.98
92290	Graphic Design Studio	\$659.00
97754	Macromodel 1.5 w/Renderman	\$194.98
00839	Macromedia Director V4.0	\$789.98
97770	SoundEdit 16 CD	\$276.98

Mainstay		
01159	MacFlow 4.0	\$221.98
93218	Plan and Track	\$191.98

MetaTools Software		
06668	Kai's Power Tools V3.0	\$117.98
95335	KPT Bryce 1.0	\$117.98
92243	KPT Convolver 1.0	\$117.98
91629	Live Picture 2.0	\$625.00

91258	KPT Vector Effects	\$1
Metrowerks		
92853	CodeWarrior 7.0 Bronze	\$1
94281	CodeWarrior 7.0 Gold	\$3
Microsoft		
99702	Cinemania 1995 CD	\$
95750	Encarta '95 CD	\$
00227	Excel V5.0	\$2
04545	Excel V5.0 Ver Upg	\$1
04293	Flight Simulator V4.0	\$
99696	FoxPro V2.6	\$
00427	Office V4.2.1	\$
01220	PowerPoint V4.0	\$2
04161	Project V4.0	\$4
06184	Project V4.0 Upg	\$1
04898	Word V6.01	\$2
00596	Word V6.01 Upg	\$1
05750	Works 4.0	\$

QuarkXPress 3.32 for Mac/Power Mac
Only \$649 #95320

Nisus Software		
03479	Nisus Writer 4.0 for Mac	\$1
93238	Nisus Writer w/Language Key 4.0	\$2

Now Software		
91229	DateBook Deluxe CD	\$
99120	Now Up-to-Date V3.5/Now Contact V3.5	\$
04191	Now Utilities V5.0	\$
89664	Now Utilities 5.0/Conflict Catcher 8ndl	\$

04806	Org Plus 1.0	\$1
-------	--------------	-----

92896	Optimem RAM Charger	\$
-------	---------------------	----

OSC		
96277	Deck II v2.2	\$3
96278	Metro 3.0	\$1

Pantone		
93465	Pantone ColorDrive	\$1
89657	Pantone Designers Survival Guide	\$1
04056	Pantone Process Guide	\$1

Peachtree Software		
02594	Peachtree Accounting	\$
05745	Peachtree Insight Accounting	\$2

Quark		
04736	QuarkXPress V3.31	\$5
95320	QuarkXPress V3.31 for Power Mac	\$6

PhotoDisc		
97349	PhotoDisc Starter Kit	\$

Ray Dream		
05965	addDepth	\$
00441	Designer V4.0	\$
04150	JAG II	\$
89778	Ray Dream Studio	\$2
88707	Ray Dream Studio Upgrade	\$1

SoftKey		
95594	American Heritage Talking Dictionary CD	\$
03631	Calendar Creator 2.0	\$
99029	Infopedia w/Write NOW 4.0	\$
00641	WriteNow V4.0 w/Correct Grammar	\$

Specular International		
99535	Collage	\$2
00815	Infin-D 3.0	\$3
95285	Logomotion	\$

Stalker Software		
92867	LineShare	\$
92868	PortShare Pro	\$1

Strata		
99509	StudioPro 1.75	\$8
89786	Strata Virtual Studio	\$1

Symantec		
06231	ACT! V2.5	\$1
06997	Disk Doubler Pro V1.1	\$
04413	DiskLock V3.0	\$
03481	MacTools 4.0 Pro	\$
04890	Norton Utilities V3.2	\$
00116	SAM 4.0	\$
98076	SAM 4.0/Norton Utilities 3.1 w/\$25 Rebate	\$
04776	Suitcase V2.1	\$

06243	Software Ventures MicroPhone Pro	\$
-------	----------------------------------	----

T/Maker		
91303	ClickArt Incredible Image Pak 25000	\$

||
||
||

For the Best Deals Around!
1-800-619-9091

MONITORS

Sony		
56	Multiscan 15sf	\$479.00
40	Multiscan 17sf	\$878.00
57	Multiscan 20se	\$1,949.00
77	Multiscan CPD-1425	\$314.00
Radius		
65	20GS 20" Monochrome	\$849.98
94	Full Page Display - Grayscale	\$499.98
48	Intellicolor 20e Display	\$2,099.00
47	Precision View 17"	\$999.98
15	SuperMatch 21TXL	\$2,199.00

NEC		
19	NEC XE 21 21" Color Mtr.	\$1,949.00
17	NEC XE15 15" Color Mtr.	\$567.00
18	NEC XE17 17" Color Mtr.	\$1,045.00
21	NEC XP 17 17" Color Mtr.	\$1,079.00
22	NEC XP 21 21" Color Mtr.	\$2,279.00

DEO/GRAPHICS BOARDS

ATI		
35	Exclaim GA 2MB PCI	\$379.98
36	Exclaim GA 4MB PCI	\$497.98
37	Exclaim GA 2MB Upgrade	\$239.98
Connectix		
84	QuickCam	\$97.98

Diamond		
18	Javelin PCI Video Card 3000 2MB	\$398.98
17	Javelin PCI Video Card 3000 4MB	\$519.98

Fusus		
20	LapisColor 16 for LC	\$314.00
49	LapisColor 16 Nubus (7)	\$314.00

Radius		
50	Photo Engine	\$899.98
93	Precision Color BXJ 8-bit	\$499.98
62	PrecisionColor Pro 24X	\$999.00
92	PrecisionColor Pro 24XK	\$799.98
84	Spigot Power AV	\$849.98
42	Thunder GT	\$1,449.00
37	Thunder IV GX 1152	\$2,049.00
34	Thunder IV GX 1360	\$2,449.00
36	Thunder IV GX 1600	\$2,899.00
83	VideoVision Studio 2.0	\$3,699.00

Raster Ops		
36	PaintBoard Prism	\$659.98
15	PaintBoard Prism GT w/Painter 3.0	\$949.98
38	Targa 2000 for Mac	\$4,399.00

ACCELERATORS

Doystar		
68	PowerCard 66MHz	\$599.98
50	PowerPro 601 66MHz Xel	\$1,349.98
13	PowerPro 601 80MHz Xel w/1MB Cache	\$1,899.00
64	Turbo 601 100MHz for Ili	\$1,199.00
65	Turbo 601 100MHz for Ili	\$1,199.00
66	Turbo 601 100MHz for Ili, vx P600	\$1,199.00
69	Turbo 601/66MHz	\$849.98

DVC		
61	Equalizer for PowerMac 6100/7100/8100	\$69.98

Newer Technology		
86	MacClip for Centris/Quadra 610	\$114.98
87	MacClip for Quadra 800/840AV	\$114.98
85	Power Clip for 6100/7100	\$114.98

Trinity Works		
47	Universal PowerPak 84MHz - 126MHz	\$94.98
48	Univ. PowerPak 84MHz - 126MHz w/256K Cache	\$259.98
49	Trinity PowerPak 61/80	\$78.98
42	Trinity PowerPak 61/80 w/256K Cache	\$219.98

XLR8tar		
65	WarpFactor 135 w/SpeedDoubler Bndl	\$99.98
66	WarpFactor 150 w/SpeedDoubler Bndl	\$249.98

MEMORY

30pin SIMMS		
56	BMB 80ns Upgrade Kit (2-4MB SIMMS)	\$294.00
54	16MB 80ns Upgrade Kit (4-4MB SIMMS)	\$589.00

72pin SIMMS		
34	4MB 60ns SIMM (1x32)	\$151.98
28	BMB 60ns SIMM (2x32)	\$302.98
55	8MB 70ns SIMM (2x32)	\$279.98
07	16MB 60ns SIMM (4x32)	\$568.98

168pin DIMMS		
77	8MB 70ns DIMM (1x64)	\$314.98
78	16MB 70ns DIMM (2x64)	\$571.98
79	32MB 70ns DIMM (4x64)	\$1,140.00
80	64MB 70ns DIMM (8x64)	\$2,295.00

PowerBack 500 Series		
B1	4MB Mem Module for 520/520c/540/540c	\$179.98
B2	8MB Mem Module for 520/520c/540/540c	\$329.98
B3	16MB Mem Module for 520/520c/540/540c	\$624.98

PowerBack 5300 and 190 Series		
62	4MB Mem Module for 5300/190	\$220.00
63	8MB Mem Module for 5300/190	\$382.00
64	16MB Mem Module for 5300/190	\$667.00
65	32MB Mem Module for 5300/190	\$1,299.00

VRAM		
39	1MB VRAM DIMM for 7200/7500/8500	\$89.00

NETWORKING

Asante		
09	10T FriendlyNet Adapter	\$52.98
04	10T HUB/8 w/ 10T/TN Ports	\$169.98
45	MacCon-i LC 10T	\$94.98
47	MacCon-i LC 10T/TN	\$159.98
43	MacCon-i LC TN	\$104.98
02	MacCon-i NuBus 10T/TK	\$109.00
44	MacCon-i NuBus TN/TK	\$117.98
46	MC+301ET64 IISI & SE/30 (TK/10T)	\$145.98
11	MC30NB Mac II & Performa 600 (TN/TK/10T)	\$179.98
52	MCLC10TIII LC, LCII, LCIII (10T)	\$99.98
18	Micro EN/SC for PowerBooks 10T	\$207.00
19	Micro EN/SC for PowerBooks 10T/TN	\$277.98
17	Mini EN/SC for PowerBooks (10T)	\$235.98
40	NetExtender Hub (AUI/10T)	\$119.98
41	NetExtender Hub FN (AAUI/10T)	\$129.98
99	Thin FriendlyNet Media Adapter	\$54.98

Farallon		
88	Ether 10T Starlet/16	\$568.98
87	Ether 10T Starlet/4	\$168.98
07	Ether10-T Transceiver (AAUI/10T)	\$51.98

03475	Ether10-T Transceiver (AUI/10T)	\$64.98
9884B	EtherThin Transceiver (AAUI/TN)	\$49.98
98409	EtherWave AAUI Transceiver	\$94.98
9840B	EtherWave AUI Transceiver	\$96.98
98412	EtherWave LC Card	\$168.98
93339	EtherWave Multi Printer Adapter	\$335.98
98411	EtherWave NuBus Card	\$169.98
00828	PhoneNET DIN-8 10-Pk PN310	\$184.98
00832	PhoneNET DIN-8 PN30B	\$26.98
02779	PhoneNET Star Connector PN301	\$14.98
Run		
92176	RunShare	\$274.98
92179	RunShare LocalTalk 6-user Pack	\$139.00

COMMUNICATIONS/MODEMS

Global Village		
92131	OneWorld Combo - 2 Line (no modems)	\$1,274.98
92132	OneWorld Combo - 2 Line (w/modems)	\$1,749.00
05686	PowerPort Bronze	\$89.98
05684	PowerPort Gold	\$179.98
94388	PowerPort/Mercury for PowerBook 5XX	\$329.98
01167	PowerPort/Platinum for PowerBook 1XX	\$324.98
98183	PowerPort/Mercury for PowerBook DUD	\$329.98
93748	TelePort Gold II	\$109.98
01155	Teleport Platinum V.34 for Desktop Macs	\$195.00

Motorola		
90622	Motorola Power 28B V.34 Data/Fax Modems	\$249.98

Practical Peripherals		
92139	MacClass MC144T2-EZ PCMCIA	\$179.98
90600	MacClass MC28B72-EZ PCMCIA	\$349.98
92951	MacClass MC28BMT II v.34	\$214.98

ORA		
Call	Cellular Data Link	\$198.98

Supra		
93719	FAXNetwork Software Server	\$69.98
93720	FAXNetwork Software 5 User	\$134.98
93721	FAXNetwork Software 10 User	\$189.98
93736	Supra Express 144 Plus	\$95.98
93308	Supra FaxModem 144LC Ext - Mac	\$128.98
06865	Supra FaxModem 144PB Int - PowerBook	\$157.98
96582	Supra FaxModem 28B Ext - Mac	\$203.98
90212	Supra FaxModem 28B V.34 Int for PB	\$239.00
89309	Supra Express 28B V.34 FaxModem	\$169.00
00413	Supra FaxModem V.32BIS (MC) w/St Cable	\$173.98

TT Systems		
92410	DLE-400 4-Device Auto Fax/Modem Switch	\$94.98

TDK		
91807	TDK 28B PCMCIA Fax/Modem for Apple Sxx	\$279.98

US Robotics		
93701	Mac & Fax Sportster 14.4	\$112.98
92953	Mac & Fax Sportster 28B V.34	\$209.98

STORAGE DEVICES

Apple Hard Drives		
93568	1080MB Ext HD	\$499.00
95338	540MB Ext HD	\$369.98

Fujitsu		
01180	DynaMQ 230MB Optical Drive	\$637.98

FW8		
06271	CD-RDM Toolkit	\$47.98
00555	Hard Disk Toolkit	\$115.98
05476	Hard Disk Toolkit - Personal Ed	\$46.98
94121	SCSI JackHammer	\$449.00
90124	PCI SCSI JackHammer	\$389.00

Iomega		
93320	Iomega MacTransportable 230	\$452.98
96810	Iomega MacTransportable 90 Pro	\$295.98
96811	Iomega MacTransportable Multidisk 150	\$429.98
91825	Zip Drive	\$198.00

LaCie		
93565	PocketDrive 170MB	\$309.00
93566	PocketDrive 256MB	\$399.00
93564	PocketDrive 85MB	\$209.00
03949	D Drive External 1080MB	\$459.00
03698	D Drive External 540MB	\$339.00

Pinnacle Micro		
92403	RCD 1000 Recordable CD-RDM	\$1,599.00
93302	Sierra 1.3GB Optical	\$1,889.00
93301	Tahoe 230MB Optical	\$749.00

PLI		
94112	Infinity 230MB Optical 3.5"	\$804.98
95364	Infinity 200 Removable Drive	\$614.98
96823	Infinity 270 Turbo S	\$537.98

Sony		
02139	Sony Portable MD Data Drive	\$599.98

PowerBook HD		
94074	256MB 2.5 Drive	\$249.98
99176	340MB 2.5 Drive	\$359.00

External HD		
99927	Duquantum 1GB	\$499.98
01108	Quantum 540MB	\$299.98

Removable HD		
01142	SyQuest 200MB w/o cartridge	\$429.00
97989	SyQuest 270MB w/o cartridge	\$409.98
06538	SyQuest 44/88MB w/o cartridge	\$312.98

SCANNERS

Agfa		
02135	Arcus II	\$2,729.98
02102	StudioScan	\$679.98
02103	StudioScan II	\$869.98
89851	StudioScan IISI	\$889.00

Epson		
91939	ES-1000C	\$737.00
02133	ES-1200C	\$949.98
02110	ES-1200C Pro Scanning System	\$1,121.00

Hewlett-Packard		
90487	ScanJet 3C	\$949.98

Micarek		
06903	35T Slide Scanner	\$934.98
06821	Automatic Document Feeder	\$359.98
91941	ScanMaker II	\$378.98
91940	ScanMaker IIG	\$329.98
01122	ScanMaker III	\$2,486.00
91942	ScanMaker IISP	\$476.98

Nikon		
06926	Coolscan	\$1,349.00
01174	ScanTouch Flatbed	\$1,169.98

Polaroid		
01192	SprintScan 35mm	\$1,499.00
Relisys		
91990	Reli 2412TE w/Photoshop LE	\$779.98
02138	Reli 4830T w/Photoshop 3.0	\$1,238.00

Umax		
91969	8izCard Reader for Mac	\$229.98
01189	Powerlook w/Transparency Adapter	\$2,999.98
02175	UC 1260 Pro w/Full Photoshop	\$859.00
01193	Vista S6 Pro w/Full Photoshop	\$649.00
91968	Vista S8 Pro w/Full Photoshop	\$774.98

INPUT DEVICES

Alps		
9269B	Alps Glidepoint for Mac	\$70.98

Calcomp		
91862	Drawing Slate II 12x12 w/Pressure Pen	\$224.00
91869	Drawing Slate II 12x18 w/Pressure Pen	\$319.98
91870	Drawing Slate II 6x9 w/Fractal Painter 3.0	\$419.98
91864	Drawing Slate II 6x9 w/Pressure Pen	\$194.00

Kensington		
9362B	Thinking Mouse ADB	\$84.98

Logitech		
0425B	MouseMan	\$69.98
95612	TrackMan II	\$68.98

9362B	Thinking Mouse ADB	\$84.98
	Lagitech	
0425B	MouseMan.....	\$69.98

PRODUCT INDEX

BUSINESS TOOLS



PRODUCT INDEX

Category	Page No.	Category	Page No.
BUSINESS TOOLS	204-207	PROGRAMMING & UTILITIES	236
Bar Code		Languages	
Data Recovery		SERVICES & SUPPLIES	236-237
Electronic Paper		Computer Insurance	
Manufacturing		Computer Repair	
Point of Sale		Data Recovery	
Presentation		Slides	
		Specialized Market Services	
EDUCATIONAL & RECREATIONAL	231-233,235	SYSTEMS & PERIPHERALS	207-226
Astrology		Switch Box	
Children's Furniture		UPGRADES & MEMORY	226-231
Discount Software		Memory Upgrades	
Games			
Genealogy			
Grading			
Religion			
GRAPHICS	235-236		
Clip Art			
Genealogy			
Math			
MULTIMEDIA & CD-ROM	234-235		
NETWORKING & COMMUNICATIONS	236		
BBS			

ACCOUNT MANAGERS: 800.888.8622

Carol Johnstone 415.978.3152

Shannon Smith 415.974.7414

Niki Stranz 415.978.3105

DTP COORDINATOR:

Clayton Haberman 415.978.3132



Fast Systems 800-508-4444
Mail Order Tel. (508) 653-6911
 Fax (508) 650-1872

Distribution
 EES Companies, Inc.

Point-of-Sale

- Order Entry
- Invoicing
- Fast Cash Retail
- Purchase Order
- Credit Card Processing
- Inventory Control
- Barcoding
- Multi-User
- Complete Systems Available

Demo Available

CIRCLE 492 ON READER SERVICE CARD

CREDIT CARD

Authorization & Electronic Deposit Software

- Automatically authorizes and deposits all credit card sales -- individually or in batches
- Integrate with your sales system with AppleEvents, AppleScript & import/export

INTERNET COMMERCE READY

MacAuthorize 800/483-5526
 info@tellan.com http://www.tellan.com
Tellan Software, Inc

CIRCLE 480 ON READER SERVICE CARD

POINT-OF-SALE

Systems start as low as

\$695

Ensign SYSTEMS INC.

Mac OS

POS-IM gives you the necessary tools to secure your profits and build your business.

The One That Apple® Uses

POS-IM

Point-of-Sale • Inventory Management

Call Today 1-800-409-7678
 Ph: (801) 546-1616 • Fax: (801) 546-6490

INVENTORY MANAGEMENT

CIRCLE 417 ON READER SERVICE CARD

A lifesaver for problem files

CanOpener \$125...\$59

Emergency access to all your Mac files!

Recover data from damaged files.
 Read files your Mac can't open.
 Search for missing information.
 Grab text & pictures from any file.
 Browse files fast. A lifesaver!

NEW Version 3.0! Supports PowerMac NATIVE!
 Reads over 25 picture formats - including DOS and Windows!

FREE SHIPPING!

Order TOLL FREE 1-800-552-9157
 or FAX to 914-747-9115 or MAIL check to:

ABBOTT SYSTEMS 62 Mountain Rd.
 Pleasantville, NY, 10570

CIRCLE 431 ON READER SERVICE CARD

IN CYBERSPACE, NO ONE CAN HEAR YOU SCREAM.

HEY, LOSING DATA IS A MAJOR DRAG
 BE PREPARED!! PROTECT AND RECOVER YOUR DATA WITH DATA RECOVERY TOOLKIT™.

GETS TO THE DATA LIKE NO UTILITY CAN...
 POWERFUL DATA RECOVERY SOFTWARE FROM THE DATA RECOVERY COMPANY™

EASY TO USE • BE PREPARED FOR DATA LOSS • \$249
 800-743-0566

DEALER AND SITE LICENSE INQUIRIES WELCOME

CIRCLE 473 ON READER SERVICE CARD

Barcode Generation

Mac BARCODA High Quality EPS bar codes. The highest precision barcode software available for the Mac.

Label Printing

Label printing with bar codes, text, graphics, sequential numbers and mail merge on PostScript printers with Label Designer or reel-fed thermal printers with MacThermal - supports Zebra, TEC, Datamax, RJS.

Bar Code Readers for Mac or PC \$255

Computalabel

Call Toll Free - 800-289-0993

28 Green Street, Newbury MA 01951
 Fax 508-462-9198

CIRCLE 544 ON READER SERVICE CARD

Newton® Joins the Mac-Barcode® Family!

One Stop Shopping with Friendly Support from the Experts

Simple Fast Accurate

Newton® Walk-About™
Mac-Barcode ProLabel Software
SmartLaser/SmartScanner/SmartPen
Thermal Transfer Printer
Call for Literature & Free Demo Disk

The Mac-Barcode Co.
800-733-7592
FAX 617-934-6233

CIRCLE 562 ON READER SERVICE CARD

BAR CODE PRO™

Create EPS graphics for your desktop publishing documents. Call for a free demo disk and get the information you need to make an intelligent purchasing decision for Mac or Windows.

800.619.0399
718.499.6293
or fax
718.768.3997

0 012345 7

SYNEX

CIRCLE 450 ON READER SERVICE CARD

Bar Coding

Call us for info

Portable & Non-Portable Readers

- Radio Frequency Readers
- PostScript Bar Code Fonts

800-345-4220

WORTHINGTON DATA SOLUTIONS

Manufacturing

New Version

Inquire/Mac 1.6

- Bill of Materials
- Purchasing
- Inventory Control
- Custom AppleScript Links

Call 800 782-5682
Fax 714-830-5691
Call for Demo!

OnBase Technology, Inc.

CIRCLE 479 ON READER SERVICE CARD

PRINTBAR™ BAR CODE FONTS

- ▶ Compatible with virtually any Macintosh application.
- ▶ Choose from: • UPC/EAN/ISBN • Code 39 • Interleaved 2 of 5 • POSTNET/FIM.
- ▶ 90-day money back guarantee.
- ▶ "This is the best product of its kind, and it's reasonably priced too" —MacUser review ★★★★★ 1/2

EXTRA BONUS FREE POSTNET & FIM
with any PrintBar Font purchase

Bear Rock TECHNOLOGIES

4140 Mother Lode Dr., Ste. 100, Shingle Springs, CA 95682
916 672-0244 • Facsimile 916 672-1103

Scanning bar codes is even easier!

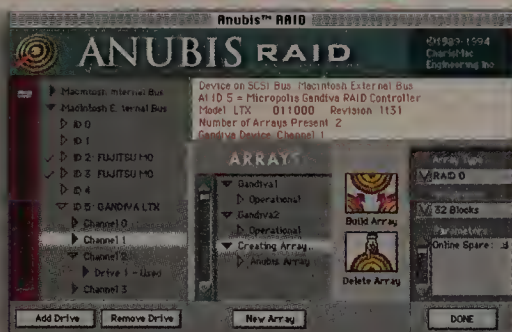
CODESCAN 3000™ BAR CODE READER

- ▶ Comes complete with wand and 5 year warranty.
- ▶ Scans information directly into software application.
- ▶ Available with laser gun, CCD, badge slot, magstripe options.
- ▶ No software required. Ready to use in minutes!
- ▶ Money back guarantee.

New model now available!

Call the Bar Code Experts
800 232-7625

Going FAST!



RAID

SCSI Manager 4.3 compliant Anubis RAID offers you the fastest software RAID (0 & 1) solution for the Macintosh.

\$199.95 SRP

CD ACCELERATION SOFTWARE

CD AutoCache offers you a quick, simple solution to push your CD-ROM drive to its maximum potential, increasing the performance of even the fastest drives on the market.

\$79.95 SRP

800-487-4420

Tel (916) 885-4420 Fax (916) 885-1410

CHARISMAC ENGINEERING, INC.



MACWORLD BOOTH

CIRCLE 490 ON READER SERVICE CARD

Fax On Demand 1-800-234-0455 ext. 674

Electronic Paper™ prints 10 times faster—replaces these print tools and much more!

- Watermarkers • Bar Coders • Paper Designers
- Toner Tuners • Label Makers • Paper Savers

Electronic Paper templates optimize printing, create paper of any size, create multi-ups to your design, build pamphlets or stacked prints, and colorize and gray images...



LaserMerge when printing from any application

This is the button you push

- Save images in the printer's disk/memory
- PS Level 2 forms
- Flash print forms
- Borders/Graphics
- Letterheads/Invoices
- Serial numbers
- Copy-dependent pages
- 38 text commands

LaserMerge is not a printer driver! It's a revolutionary printing system that will change the way every application prints...

System 7 required. Works with both PostScript and QuickDraw printers. LaserMerge's miracles require only 32K of system memory. QuickDraw GX is NOT required! LaserMerge ships ready to install in English, French, German and Spanish.

For 101 ways to use LaserMerge, call (800) 648-6840

30-day money-back guarantee

Competitive Upgrade: If you own ANY Print Utility, you can upgrade to Electronic Paper for \$40. Call for details!

List Price: \$95 Networked Sites: \$25/unit

Worldwide: (615) 937-6800 Fax Facts: (615) 937-INFO
Internet: MGTSales@mindgate.com Fax: (615) 937-6801

MindGate, LaserMerge, Electronic Paper and their logos are trademarks of MindGate Technologies, Inc.



MindGate Technologies, Inc.
164 Oliver Smith Road
Flintville, TN 37335-5335

CIRCLE 517 ON READER SERVICE CARD

THE RIGHT SOFTWARE FOR YOUR BOTTOM LINE



ANSI/BIFMA
APPROVED

5 New Models Available!
Please Inquire.

A2

FREE ERGONOMIC
HANDBOOK WITH ORDER.

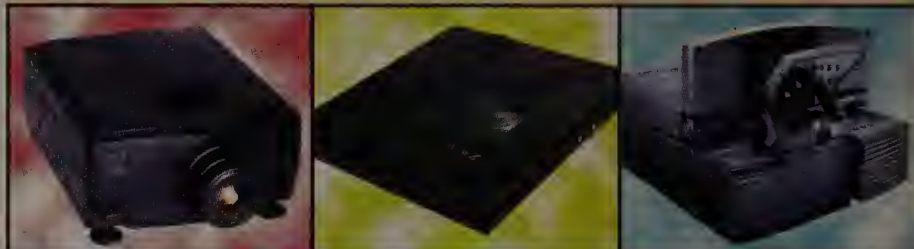
- Overall height adjustment
- Seat & back tilt
- Arms adjust up & down & in and out
- Back height adjusts
- Thick cushions
- Blue, Grey, Black, Burgundy
- Completely Ergonomic

\$198.95
(Arms Additional)
**Visa, MC,
AMEX**

1-800-330-4480
THE ERGONOMICS STORE

CIRCLE 494 ON READER SERVICE CARD

IF WE DON'T SELL IT, IT'S NOT WORTH LOOKING AT.



PANELIGHT IS YOUR ONE STOP SHOP FOR ALL LEADING BRANDS
• SALES, RENTALS, & LEASES
• MONEY-BACK GUARANTEE • OVERNIGHT SHIPPING.

PANELIGHT OFFERS THE BEST IN SELF-CONTAINED LCD PROJECTORS, LCD PROJECTION PANELS, SUPER-BRIGHT OVERHEADS, MULTIMEDIA MONITORS, AND ACCESSORIES FROM THE WORLD'S LEADING MANUFACTURERS; HITACHI, IN FOCUS, PROXIMA, NEC, NVIEW, POLAROID AND OTHERS.

**CALL THE EXPERTS AT
PANELIGHT
DISPLAY SYSTEMS, INC.**

CALL
**PANELIGHT FOR
OUR
FREE CATALOG:
1-800-726-3599.**

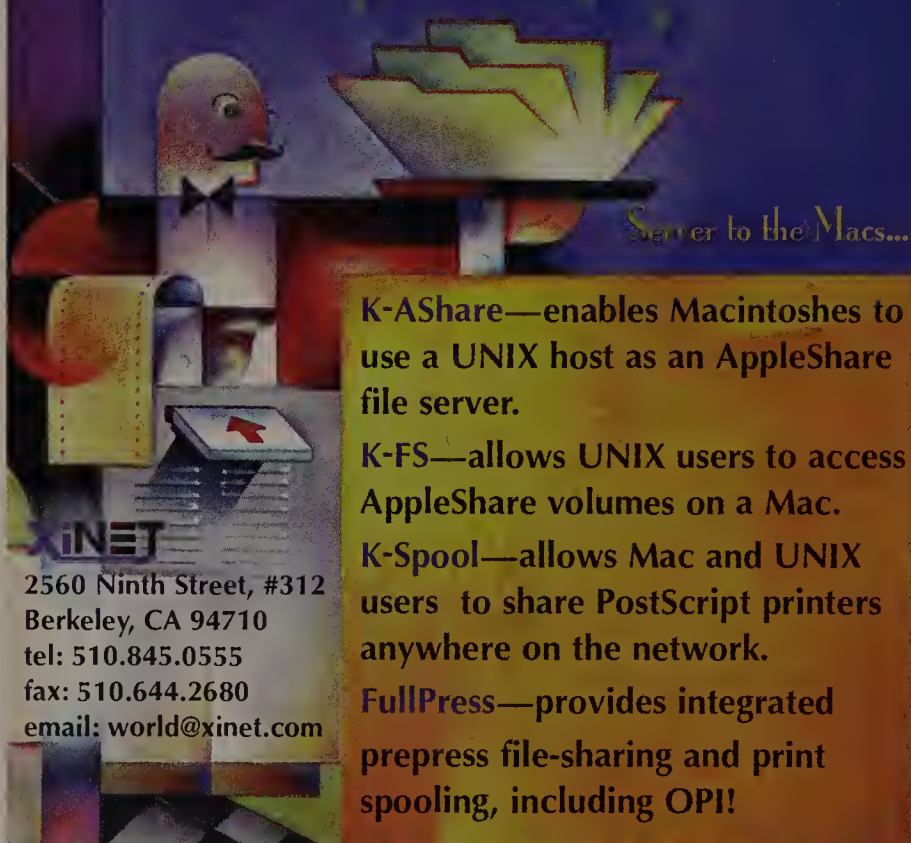
MON.-FRI.,
6:30AM-5:30PM P.S.T.
24-HR. FAX: 415-986-3817

Panelight
DISPLAY SYSTEMS, INC.

PANELIGHT DISPLAY SYSTEMS, INC.,
P.O. BOX 190940,
SAN FRANCISCO, CA 94119.
OR CALL 415-772-5800.

CIRCLE 481 ON READER SERVICE CARD

Integrate Macs with SGI/Sun/HP



K-AShare—enables Macintoshes to use a UNIX host as an AppleShare file server.

K-FS—allows UNIX users to access AppleShare volumes on a Mac.

K-Spool—allows Mac and UNIX users to share PostScript printers anywhere on the network.

FullPress—provides integrated prepress file-sharing and print spooling, including OPI!

Convenient GUI!
No additional Mac software required.

CIRCLE 403 ON READER SERVICE CARD

Make your computer both a Macintosh and a UNIX workstation.

MachTen is Berkeley BSD UNIX that runs on the Classic to the Power Macintosh! So in addition to the easy-to-use applications that make Macintosh the most personable computer around, you get a MACH-based UNIX with pre-emptive multitasking.

The Macintosh/UNIX integration is so strong that you can even use Mac programs and utilities on UNIX data, and UNIX programs and utilities on Mac files.

MachTen's full internet protocol support ensures fast, easy client and server NFS, electronic mail, and file transfer with all TCP-based entities on your network.



The MachTen operating system combines the high-level functionality of a networked UNIX workstation with Macintosh's wide array of applications.

The UNIX development system includes the GNU C and C++ compilers and libraries for creating new applications or port existing ones. The Motif toolkit and suite of X clients and libraries make developing distributed applications a breeze.

And Tenon's high performance X Server lets you use your Macintosh or Power Macintosh as an X terminal.

For more information, or to order
Call 1-800-6-MACH-10

internet: info@tenon.com
http: //www.tenon.com

TENON
INTERSYSTEMS

1123 Chapala Street, Santa Barbara, CA 93101
Tel: 805-963-6983, Fax: 805-962-8202

©1994 Tenon Intersystems. All trademarks are the property of their respective owners.

CIRCLE 468 ON READER SERVICE CARD

POINT OF SALE INVENTORY CONTROL

- Retail
- Rentals
- Service
- Manufacturing
- Multi Location

Bar Code/Magnetic Stripe Readers
Receipt Printers • Cash Drawers
Credit Card Auth. & Deposit Software
Complete POS Systems as low as \$940.00
Web Site: <http://www.posdirect.com>

call, fax, or e-mail for a FREE CATALOG

(800) 622-7670 posdirect@aol.com

(618) 985-8237 TEL • (618) 985-3014 FAX

Dealer Inquiries Welcome

30 day MBG



CIRCLE 466 ON READER SERVICE CARD

MAC TALK

CPU's: POWER PC

Quadras & Powerbooks

All models available

DISPLAYS: Apple, SuperMac, NEC,

RasterOps, Radius,

Sony and others.

SCANNERS: Microtek,

Umax, HP, Sharp & More.

PRINTERS: Apple, HP,

NewGen, GCC.

MODEMS: Global Village

**DEALERS AND
INTERNATIONAL SALES
WELCOME!**

800-622-5557

(818) 225-9327

FAX

(818) 225-8627

mactalk@primenet.com

<http://www.primenet.com/~mactalk/>

22536 Ventura Blvd.

Woodland Hills, CA 91367

CIRCLE 540 ON READER SERVICE CARD

Micro link

Power Mac 9500 120 MHZ	\$4275
Power Mac 8500 1/2 GIG	\$3975, \$4375
Power Mac 7500 500/1 GIG	\$2675, \$2875
Power Mac 7200 75/90 MHZ	\$1575, \$1950
Powerbook 5300C 16/750	\$4299
Powerbook 5300CS 16/750	\$3299
Powerbook 5300CS 8/500	\$2599

We also carry Performa, Apple
Printers, Monitors & Peripherals

Lowest Prices Guaranteed

800-645-MAC9

Fax 310 891-0226

P.O. Box 1010 Torrance, CA 90510

CIRCLE 503 ON READER SERVICE CARD

UNBELIEVABLE LOW PRICES

HARD DRIVES (1 YR WRNTY)

CAPACITY INTERNAL EXTERNAL

20MB \$40 \$80

40MB \$58 \$98

80MB \$85 \$135

270MB \$125 \$165

330MB \$159 \$199

540MB \$185 \$225

1080MB \$345 \$385

FLOPPY DRIVES (90 DAYS WRNTY)

800K--\$80 1.44MB--\$150

30 PIN MEMORY 72 PIN

QUADRA 900, 950, 700, ALL POWER MACS 6100, 7100, 8100,

11VX, 11, 11C, 11S, 11SE30, 11CII, QUADRA, CENTRIS, PERFORMA, LOTS.

1MB 1X8-BONS \$34 4MB 1X32 \$134

2MB 2X8-BONS \$74 8MB 2X32 \$275

4MB 4X8-BONS \$129 OTHERS CALL

KAHON, INC. 1-800-317-9989

22899 OLD CANAL RD PH: 714-837-5080

YORBA LINDA CA 92687 FAX: 714-837-5597

CORP., SCHOOL & GOVT. P.O. WELCOME

VISA OVER 6 YEARS IN BUSINESS DISCOVER

CIRCLE 444 ON READER SERVICE CARD

USED COMPUTERS



The Computer Exchange

"We match buyers
and sellers of used
MACS nationwide."

Classic to PowerPC

Call for More Info

800-304-4639

CIRCLE 460 ON READER SERVICE CARD

radius

Precision View 21	\$ 2190
Multiview 21	1700
Intellicolor 20e	1845
Precision View 17	845
SuperMatch 17xl	735
ThunderColor30/1600	1935
ThunderColor30/1152	1490
Thunder30/1600	1095
Thunder30/1152	750
ThunderIV GX 1600	2585
ThunderIV GX 1360	2155
ThunderIV GX 1152	1790



Farallon

INCORPORATED

M I S E N O

DAYSTAR

LIVE PICTURE 2.0

\$ 595

PAINTER 3.1

\$ 295

MICROTEK

Better Images Through Innovation.

ScanMakerII/PhShop	\$ 2295
ScanMakerIHR/PhShop	775
ScanMakerIISPX/PhShop	640
ScanMakerIISP/ColorIt	480
ScanMakerII/ColorIt	385

WACOM

ArtPad II 4x5 Tablet	135
Art-Z II 6x8 Tablet	315
Art-Z II 12x12 Tablet	435

Lowest Prices • Professional Solutions

Call: 800-446-1002

CIRCLE 485 ON READER SERVICE CARD

RECORDABLE CD

YAMAHA

CDE-100

\$2399

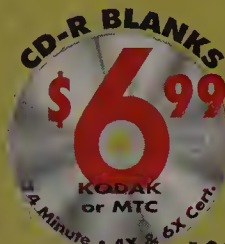


Internal \$2249

JVC

Personal Archiver

\$1199



Create
Enhanced
Mode
CD's
(CD+)

FWB 2X HAMMER CD-R

With Toast for Mac
Includes CD ROM Toolkit

\$1499

OPTICAL CARTRIDGES

128MB...	\$14.99	230MB...	\$19.99
650 GB Optical...	\$45	1.3GB Optical...	\$59

SYQUEST CARTRIDGES

44MB...	\$33	88MB...	\$37	105MB...	\$35	200MB...	\$70	270MB...	\$56
---------	------	---------	------	----------	------	----------	------	----------	------

NEW and HOT!

APEX 4.6 GB

• Limitless Storage

• 17 ms Access / 4.5 MB per Sec

\$1599

iomega JAZ II

1GB Removable HD

• 3.5" Removable Hard Disk Technology

• 6.7 MB per sec. Ideal for Video

\$599

IN STOCK

**FWB PCI JACKHAMMER
SCSI ACCEL. \$389**

MACROMEDIA DIRECTOR

Author Your Own CD Titles

Toast CD Pro \$269

CD-DA for Audio CD's ...\$459

DigiDesign Masterlist ... CALL

MEDIASTORE

See us at [HTTP://www.mediastore.com](http://www.mediastore.com)

800-555-5551

ph. 714-997-5551 • fx. 714-997-5553

VISA MASTERCARD AMERICAN EXPRESS

CIRCLE 471 ON READER SERVICE CARD

Powermacs Powerbooks N.E.C Sony

7200/75 8/500/cd	1549	PB 5300cs/100 8/500	2495	3V / 3fge	499/579	CPD-15 SF	465
7200/90 8/1gb/cd	1999	PB 5300c/100 16/750	4075	XE15/XP15 15"	575/675	CPD 17 SF 17"	865

7500/100 16/500/cd 2529 PB 5300ce/117 32/1g Call XE17/XP17 995/1245

7500/100 16/1gb/cd 2749 PB Duo 2300C Call XE21/XP21" 1995/2475

8500/120 16/1gb/cd Call PB 520C 4/160 Call XV15/XV17 445/749

8500/120 16/2gb/cd 4199 PB 520C 12/320/mdm 2645

9500/120 16/1gb/cd Call

9500/132 16/2gb/cd 4895

6100/66 8/500/cd Call

7100/80 8/700/cd Call

8100/100 16/700/cd Call

8100/110 16/2gb/cd Call

Apple Monitors

Multiplescan 14" 359

Apple 15" Color 439

Multiplescan 1705 749

AppleVision 1710A V Call

Multiplescan 20" 1899

Performas

6218 CD Call

6116CD/60 8/700 Call

5215CD/75 8/1gb Call

6200CD/75 8/1gb Call

6300/100 CD Call

All Performas come with

monitor, keyboard, modem

and bundled softwares/cds

Workgroup Servers

6150 16/700/cd/AS 2865

6150 16/700/cd/Inet 2639

8150 16/1g/cd/DAT 4935

8150 16/1g/cd/Inet 4165

9150 16/2g/cd/dat 6869

9150 16/2/cd 5855

Laserjet 4M Plus 1869

Deskjet 1200C PS 1595

Deskjet 1600CM 1875

Deskjet 850C 545

Laser 4MV 11x17 2699

Laser 4SiMX 4079

Scanjet 3C 919

Scanjet 3P 325

Jet Direct card 299

Duplex option 4M+ 495

All H.P. Acc. available

Apple Printers

Stylewriter 1200 269

Stylewriter 2400 399

Port. Stylewriter 2200 399

Laser Select 320 719

Laserwtr 4/600 PS 865

Laser Select 360 Call

Laser 16/600 P/S Call

Col. Laserwtr 12/600 6145

Laser pro 810 Call

Radius

Precisionview 17" 945

Pressview 21T 2995

Multiview 21" 1799

Precisionview 21 2175

Supermatch 21TXL 2075

Thundercolor 30/1600 1895

Thundercolor 30/1152 1499

Thunder 30/1600 1139

Thunder IVgx 1152 1895

Precesioncolor 8/1600 459

Telecast Board Call

Prepn. clr. pro 24X 1045

Call for current best prices & items not listed

CIRCLE 440 ON READER SERVICE CARD

Mac Storm

Since 1988

800-594-4007

Fax 800-329-9553

Local & Int'l tel (310)829-9780

Local & Int'l fax (310)315-1009

International & Dealer sales Welcome

Corporate Leasing Available

Prices reflect 3% cash discount and may change

without notice due to publication lead time

WORLD MICRO 1-800-580-0177

Powermacs		Performas	
6100/66 8/500	1325.	631CD 8/500	1498.
6100/66 8/500CD	1465.	638CD 8/350 TV	1498.
7100/80 8/500	1620.	640CD DOS 12/500	1999.
7100/80 8/700CD	1799.	5215CD 8/1000	2175.
7100/AV 16/700CD	2195.	6116CD 8/700	1680.
8100/100 8/700	2395.	6200CD 8/1000	1976.
8100/100 16/1GIG CD	3025..	Powerbooks	
8100/AV 16/1GIG CD	3196.	Powerbook 190/66 8/500	1780.
8100/110 16/2GIG CD	3699.	Powerbook 190/66CS 8/500	2100.
Shipping Anywhere in the U.S.			
7200/75 8/500CD	1596.	Printers	
7200/90 8/500 CD	1784.	Laser 4/600	844.
7500/100 16/500CD	2535.	Laser 16/600 w/kit	1965.
7500/100 16/1GIG CD	2810.	Laser 12/600 w/kit	6100.
8500/120 16/1GIGCD	3750.	Stylewriter 2200	375.
8500/120 16/2GIG CD	4220.	Stylewriter 2400	382.
9500/120 16/1GIG CD	4412.	Displays	
9500/132 16/2GIG CD	5070.	14" Multiscan	352.
Power PC Powerbooks		15" Multiscan	475.
5300 CS/100 8/500	2540.	17" Multiscan	955.
5300 CS/100 16/750	3190.	1710 AV	1040.
5300 C / 100 8/500	3380.	20" Multiscan	1970.
5300 C / 100 16/750	4060.	World Micro Systems Inc. Miami, FL	
5300 CE/117 32/1.1GIG	6025.	(305)716-0177	(305) 716-0277 fax

Prices reflect a 3% discount and can change without notice

CIRCLE 412 ON READER SERVICE CARD

Mac Pro Systems & Software Since 1985

One Call And Any Ad is a Mac Pro Ad

Small Ad = Huge Savings for You

Buy • Sell • Trade • Repair • New • Used

The Professional & Macintosh Experts

Every Model In Stock And Ready To Ship

Lowest Mac & Memory Prices

The Best Repairs Fast

All Parts Available

Call For Our Wholesale Specials Fax

1-800-525-3888

Fax: 408-369-1205

Visa/MC/Amex/Disc/Tech/Education/PO's Welcome

CIRCLE 476 ON READER SERVICE CARD

1-800-334-KIWI

Factory Refurbished Performas

Performa systems include keyboard, color monitor & ClansWorks.

Performa 550 and 575.....Call

Perf. 475 4/160 w/14" color monitor.....\$799

Perf. 630 8/250 CD w/14" color monitor.....\$999

Perf. 637 8/350 CD w/14" color monitor.....\$1049

Perf. 637 8/350 CD w/15" Multiscan.....\$1149

Perf. 638 8/350 CD TV w/15" Multiscan.....\$1199

Perf. 6112 8/250 CD w/15" Multiscan.....\$1499

Refurbished products have a 90 day warranty.

Visa/Mastercard/AmEx No Surcharge.

Returns subject to a 15% restocking fee. Prices subject to change without notice.

Kiwi Computers, PO Box 67381, L.A., CA 90067

Toll Free (800) 334-5494 Fax (310) 286-9667

International (310) 553-4507

Hours: Mon-Fri 8am-5pm, Sat 9am-2pm PST

CIRCLE 404 ON READER SERVICE CARD

Active Buyers turn to the



Over 590,000 Macworld subscribers turn to the Macworld Shopper monthly. 531,250 of these buyers have taken action as a result of seeing an ad in the Macworld Shopper.

Macworld Shopper Purchase

NEW POWER MAC		MEMORY	MAC CITY COMPUTERS	Monitor	Powerbook	Performa
9500/132mhz 48-2GIG CD 6399 16-2GIG CD 4899	9500/120mhz 48-1GIG CD 5549 16-1GIG CD 4299	64MB DIM 2099 32MB DIM 1049 16MB DIM 539 8MB DIM 319 32MB 72PIN 949 16MB 72PIN 449 08MB 72PIN 289 04MB 72PIN 159 32MB F/PB Call 16MB F/PB 595 08MB F/PB 299 04MB F/PB 165	MAC CITY COMPUTERS QUALITY SERVICE AND VALUE SINCE 1987 NO SALES TAX OUTSIDE CALIFORNIA WE GUARANTEE LOWEST PRICES Prices are subject to change without notice FedEx Tel: (818) 505-8991-Fax:(818) 505-8992 SALES (800)505-8991 VISA & MC AMERICAN EXPRESS INTERNATIONAL ORDERS C.O.D Welcome 11026 Ventura Blvd STUDIO CITY, CA 91604	Apple 15" 449 Apple 17" Multi 799 Apple 202 Multi 1899 SONY Sony 17Se1 Call Sony 17sf 879 Sony 15sf 499 Sony 20SE 1795 RADIUS NEC CALL SUPERMAC Sup 21TXL Thunder 4GX 1152	5300 8-500 2089 5300CS 8-500 2549 5300CS 16-750 3149 5300C 8-500 CALL 5300C 16-750 3999 5300CE 32-1G CALL 190C 8-500 2189 540C 12-320 CALL 520C 8-240 520 12-320 NEW LOW 4-160 PRICE 150 4-120 Call G.V Powerport Mercury 309 G.V modem F/5300 Call	COMPLETE SYSTEMS 6220 16-1G CD 2049 6200 8-1G CD 1999 5215 8-1G CD Call 5200 8-800 CD Call 6116 8-700 CD Call 638 8-350 CD Call 640 12-500 DOS 1949 631 8-500 CD 1499 QUADRA 650/630/840/950 CALL Scanners Microteck-Umax-Epson HP-AGFA TRADE YOUR OLD MAC TO A NEW MAC
8500/120 16-1G CD 3789 48-2G CD 5289 144-4G CD Call	7500/100 16-1G CD 2789 48-1G CD 3849 16-500 2445	HARD DRIVES Quantum 4g 1049 Quantum 2g 749 Quantum 1g 309 Quantum 700 225 160mb f/PB 99 320mb f/PB 199 540mb f/PB 329 EX KIT 59		Printers Apple Pro 4/600 849 Pro 16/600 1599 Select 360 1079 Color 2400C 395 Styl 2200 395 HP 5MP 1039 HP 1200 cps Call HP 660c 495		

CIRCLE 442 ON READER SERVICE CARD

MacUSA Since 1983

800-809-0880

Voice: 818-704-8923

Fax: 818-704-9858

Dealer and International Orders Always Welcome!

We'll Beat Any Price!

Our E-mail Addresses: 1. Macs@ix.netcom.com
2. macusa@world.com
3. macusa@earthlink.net

Free Shipping for All California Purchases.

Visa, AmEx, & MasterCard Welcome.

24422 Vanowen Street, Canoga Park
California 91307, U.S.A.

PRICES REFLECT CASH DISCOUNT AND ARE SUBJECT TO CHANGE

PowerMac	
7200/75 8/500/CD	\$\$\$CALL\$\$\$
7200/90 8/500/CD	\$\$\$CALL\$\$\$
7500/100 16/500/CD	\$\$\$CALL\$\$\$
7500/100 16/1GB/CD	\$\$\$CALL\$\$\$
8500/120 16/1GB/CD	\$\$\$CALL\$\$\$
8500/120 16/2GB/CD	\$\$\$CALL\$\$\$
9500/120/16/1GB/4xCD	\$\$\$CALL\$\$\$
9500/136/16/2GB/4xCD/graphic card	\$\$\$CALL\$\$\$
6100-66 8/500/CD	\$\$\$CALL\$\$\$
6100-66 16/500/CD/DOS	\$\$\$CALL\$\$\$
7100-80 8/700/CD	\$\$\$CALL\$\$\$
7100-80 16/700/CD/AV	\$\$\$CALL\$\$\$
8100-100 16/700/CD	\$\$\$CALL\$\$\$
8100-100 16/1GB/CD/AV	\$\$\$CALL\$\$\$
8100-110 16/2GB/CD	\$\$\$CALL\$\$\$
Workgrp Srv 6150-66 16/700	\$\$\$CALL\$\$\$
Workgrp Srv 8150-110 16/1GB	\$\$\$CALL\$\$\$

PowerBook	
520 4/160	Call for Latest Prices and Availability on These Hot Powerbooks
520 4/240	
520C 4/160	
520C 12/320/Modem	
540C 4/320	
540C 12/500/Modem	
Call now about the latest additions to the Powerbook family!	
Performa Bundle	
630 4/250	\$\$\$CALL\$\$\$
631 8/500/CD	\$\$\$CALL\$\$\$
638 8/350/CD/VI/TV	\$\$\$CALL\$\$\$
640 8/500/Dos/CD Bundle	\$\$\$CALL\$\$\$
5215/75 8/1GB/CD Bundle	\$\$\$CALL\$\$\$
6116/60 8/700/CD/Bundle	\$\$\$CALL\$\$\$
6200/75 8/1GB/CD	\$\$\$CALL\$\$\$
6220/75 16/1GB/CD/VI/TV	\$\$\$CALL\$\$\$

Printers

Apple
Stylewriter/Laserwriter \$\$\$CALL\$\$\$

Hewlett Packard
Deskwriter/4M+/5MP/4SI \$\$\$CALL\$\$\$

Epson, GCC, NEC, OkiData

Monitors
Apple, NEC, Radius, Sony, Viewsonic

Scanners
Agfa, Apple, Epson, Hewlett Packard, Microtek, Umax

Software Blowout!!!
MS Office V4.21 (Excel, Word, Powerpoint) \$525 \$195!!
MS Word 6/Excel 5/Powerpoint4 Only \$99 Each

Memory
For all PowerMacs, Powerbooks, and Performas
4 Meg/8 Meg/16 Meg/32 Meg \$\$\$CALL\$\$\$

CIRCLE 448 ON READER SERVICE CARD

MAC SUPER DISCOUNT CENTER

•BUY•SELL•TRADE•NEW•USED•

Quadra 650/950 \$1499/1649
 Performa 450/475 \$649/829
 LW 300/320 Toner \$359/559
 Performa 630 Complete \$875
 Mac LC 575 8/320 KB \$1199
 PowerBooks (New & Refurb). Lowest
 PowerMacs (New & Refurb). In Stock
 Quadras & Centris In Stock
 Macs (All other models) Lowest
 Specializing in Educational Orders

MP-Computers

800-445-6767 Orders Only

415.988.0661 Info & International

415.968.0509 Fax

AEON

BENEFIT FROM THE
 FACT THAT WE HAVE
 NO LIFE AND SIT AROUND
 MAKING
 THIS STUFF WORK.

<http://aeon.com>

1-800-935-2366

CIRCLE 437 ON READER SERVICE CARD

FREE LUNCH

OK, so there's
 no such thing
 as a free lunch.
 How about
 a free catalog?

Over 27,000
 products for
 the Mac and PC



800-741-6227

CD&G Systems

6225-F Presidential Ct.
 Fort Myers FL 33919

Web site: www.peganet.com/cdgsys/cdg.html

CIRCLE 416 ON READER SERVICE CARD

MacBYTE

SERVING MACUSERS SINCE 1989

LOW & HIGH END
 CUSTOM SETUPS

CASH FOR MACS

FAX 310-317-1583

BUY • SELL • TRADE

800-432-2983

Open Monday-Saturday
 22775 PCH, Malibu, CA 90265

CIRCLE 428 ON READER SERVICE CARD

A.M.S.

"The Professional Solutions"

1. 800. 847.4622 International Orders Welcome

*** BUSINESS LEASING ***

SALES: (310) 314-7372

FAX: (310) 314-7512

Prices are subject to change without notice

POWER MACS

F	7200/75	8/500/CD	\$1499
W	7200/90	16/500/CD	\$1999
B	7200/90	24/1GB/CD	\$2499
	7500/100	16/1GB/CD	\$2699
A	7500/100	48/2GB/CD	\$4199
T	8500/120	16/1GB/CD	\$3799
T	8500/120	48/2GB/CD	\$5299
O	8500/120	80/2GB/CD	\$6399
	9500/120	32/1GB/CD	\$4699
N	9500/120	80/2Gb/CD	\$6899
E	9500/132	32/2GB/CD	\$5399
C	9500/132	80/2GB/CD	\$6999

POWERBOOKS

190/66	4/500MB	\$1679
190/66	8/500MB	\$1849
190cs	8/500MB	\$2199
520c	8/240/Modem	\$2489
540c	12/500/Modem	\$3769
5300/100	8/500MB	\$2099
5300/100	16/500MB	\$2399
5300c/100	8/500MB	\$3429
5300c/100	16/750MB	\$4199
5300cs/100	8/500MB	\$2599
5300cs/100	16/750MB	\$3249
5300ce/117	32/1.1GB	\$6089

PERFORMA

5215CD	8/1GB/CD	\$2149
6200CD	8/1GB/CD	\$1899
6300CD	16/1.2GB	\$2659

VIDEO BOARDS

ATI Xclaim GA 2MB PCI	\$349
ATI Xclaim GA 4MB PCI	\$479
ATI 2MB Module upgrade	\$229
ATTO ExpressPCI SCSI	\$349
ATTO SiliconExpress IVNubus	\$879
FWB JackHammer Accelerator	\$389
Radius Thunder Clr 30/1600 PCI	\$1889
Radius Thunder Clr 30/1152 PCI	\$1459
EASYCOLOR 16/1600	\$599

MONITORS

SuperMatch 21TXL	\$1979
Pressview 21T 21"	\$3099
PrecisionView 17"	\$799
SuperMatch 17XL	\$749
Sony 15 Multi-Scan	\$469
Sony 17Sf Multi	\$859
Apple 15" Multiscan	\$459
Apple 17" Multiscan	\$799
AppleVision 1710	\$999

SCANNERS

AGFA Arcus II	\$2299
AGFA StudioScan IIsi	\$859
UMAX Powerlook	\$1949
UMAX MIRAGE D-16L	\$6795
EPSON ES-1000C	\$849

Special AV Model

7100/80AV 16/700/CD	\$2199
8100/100AV 16/1GB/CD	\$3149
8500120AV 16/1GB/CD	\$3849

IOMEGA ZIP DRIVE
 \$189.00 10 PK DISKS \$185

Color LW 12800PS	\$5059
LW Select 360 w/Toner	\$1099
Kodak Clr Proofer9000	\$17995
Fargo Pictura 310	\$3489
HP 850c	\$549

CIRCLE 470 ON READER SERVICE CARD

LOWEST PRICES GUARANTEED !!!

POWER MAC

PM 6100/66/8-500-CD	\$1429
PM 7100/80/8-500	\$1599
PM 7200/75/8-500 CD	\$1649
PM 7200/90/8-500 CD	\$1879
PM 7500/100/16-1Gig-CD	\$2869
PM 8100/100/8-700	\$2349
PM 8500/120/16-2Gig-CD	Best Price
PM 9500/120/16-1Gig-CD	\$4199
PM 9500/132/16-2Gig-CD	\$Call

WE WILL BEAT ANY VERIFIABLE PRICE

DEALERS / INT. ORDERS WELCOME
 WE CARRY H.P., N.E.C. SONY & etc.
 ASK ABOUT ON SITE WARRANTY!

PRINTER

STYLE WRITER II	\$199
DESK WRITER	\$229
LASER SELECT 300	\$499
LASER SELECT 320	\$699
LASER SELECT 360	\$1199
LASER PRO 16/600	CALL

POWER BOOK

520	4-160	\$1475
520C	4-240	\$1799
5300/100	8-500	\$2039
5300cs	8-500	\$2599
5300c	16-750	CALL

MONITOR

15"	CALL
Goldstar 17"	\$679
Radius 21"	\$1149

Since 1985

Prices subject to change
 without any notice.
 Reflects cash discount.

Government,
 Corporate
 & School
 Welcome

ZIP DRIVES
 In Stock

(213) 655.9666

BMI Computers, Inc.

Fax: 310.659.3803

CIRCLE 445 ON READER SERVICE CARD

TIMES COMPUTER INTERNATIONAL

POWER PC

PC6100/66/8/500/CD	\$1389
PC6100/66/16/500/CD/COS	\$2199
PC7200/75/8/500/CD	\$1500
PC7200/90/8/500/CD	\$1799
PC7500/100/16/1G/CD	\$2760
PC8500/120/16/1G/CD	\$3850
PC8500/120/16/2G/CD	\$4299
PC9500/120/16/1G/CD	\$4199
PC9500/132/16/2G/CD	\$4789
PC8100/100/8/700	\$2250
PC8100/100/16AV/1G/CD	\$2950

HARD DRIVE

540/850MG	\$195/\$250
1 GIG/2 GIG	\$300/\$710

POWERBOOK

PB 5300C/16/750	\$4200
PB 5300CS/16/750	\$3250
PB 540/4/320	CALL
PB 190CS/8/500	\$2195

MONITOR

APPLE 14" COLOR	\$290
APPLE 15" MULTI	\$465
SUPERMAC 17"	\$730
APPLE 20" MULTI	\$1845

MEMORY

PC9500/8500/7500 (DIMM)	
8MG/16MG	\$310/\$530
32MG/64MG	\$1050/\$2200

PRINTER

HP DESKWRITER 600	\$350
HP DESKWRITER 6600	\$450
HP LASERJET 5M	\$1024

CD ROM DRIVE

SANYO 4x	\$180
SONY 4x	\$200
APPLE 4x	\$310
NEC 6x	\$400

QUADRA LOGICBOARD

650/700	\$1099/\$950
800/840	\$1150/\$1299

... & MUCH MORE

PRICES SUBJECT TO CHANGE WITHOUT ANY NOTICE

TEL: 310-470-6616 FAX: 310-470-8281

10835 SANTA MONICA BLVD., SANTA MONICA, CA 90405

CIRCLE 496 ON READER SERVICE CARD

HAWKE

BUSINESS SYSTEMS

A Division of the CPS Services Group

Flemington, NJ 08822

(800) 875-2610

Fax - (908) 782-7027

Email - MacHawke@AOL.COM

Check Our Saturday Specials in AOL Mac Classified

We Buy, Sell and Trade Macintosh Equipment

Mac Se 4/40 - 800k	\$299.00	Mac Classic 4/40 - 1.4 Meg	\$399.00
Mac Se 4/40 - 1.4Meg	\$349.00	Mac Classic II 4/80 - 1.4 Meg	\$525.00

All Systems Above Complete with Keyboards and Mice

Mac IISi 5/80 with Nubus Adapter, FPU, Ext Kyb & Mouse	\$475.00
Mac IICi 5/80 with Apple Cache Card, Ext Kyb & Mouse	\$649.00
Quadra 700 8/160	\$1199.00
Quadra 900 8/160	\$1549.00

Package Pricing and Custom Configurations Available on All Models.

6 Month Parts & Labor Warranty on All Refurbished Equipment.

Convert 2.5" Hard Drives to STD SCSI (With Adapter and Bracket)	\$19.00
Apple 800 K Int Floppy Drives	\$49.00
Apple 1.44 Meg Int Floppy	\$149.00
PowerBook HDs From 40 to 320 Meg	
Std CPU Hard Drives from 40 to 500 Meg	

CIRCLE 457 ON READER SERVICE CARD

FAST CASH

For ALL Macs, Memory & Peripherals — Working or not

TOP DOLLAR PAID

Mac Traders (800)990-0995

(310) 576-2466 Mon.-Fri. 9 AM-6 PM Sat. 10 AM-4 PM (P.S.T.) Fax: (310) 394-7323
 1511 Lincoln Blvd. (bet. Broadway & Colorado), Santa Monica CA. 90401

Complete Computer Packages • Monitors • Memory • Storage • Peripherals • Printers, and More!

WE'RE YOUR COMPUTER SOURCE

NEC
MICROTEK
RasterOps

6100/66MHz 8/500	\$1247. ⁰⁰
6100 8/500 CD	\$1355. ⁰⁰
7100 8/700 CD	\$1715. ⁰⁰
7100 80MHz 8/500	\$1602. ⁰⁰
7100 80MHz 16/700 CD AV	\$1989. ⁰⁰
7200 75MHz 8/500 CD	\$1559. ⁰⁰
7200 90MHz 8/500 CD	\$1846. ⁰⁰
7500 100MHz 16/1GB CD	\$2769. ⁰⁰
8100 16/700 CD	\$2731. ⁰⁰
8100 100MHz 16/1GB CD AV	\$2957. ⁰⁰
8500 120MHz 16/1GB CD	\$3845. ⁰⁰
8500 120MHz 16/2GB CD	\$4209. ⁰⁰
9500 120MHz 16/1GB CD	\$4323. ⁰⁰
9500 132MHz 16/1GB CD	\$5048. ⁰⁰
Performa 638 8/350 CD 15" color & kb	\$1504. ⁰⁰
Performa 6200 8/1GB CD 15" color & kb	\$1504. ⁰⁰
Imagewriter II	\$398. ⁰⁰
Stylewriter 2400	\$400. ⁰⁰
Stylewriter II	\$177. ⁰⁰
Select 360 with toner	\$1335. ⁰⁰
Laserwriter 320	\$301. ⁰⁰
Laserwriter 4/600	\$880. ⁰⁰
HP DJ 850C	\$542. ⁰⁰
Star 5J 144 CLR	\$145. ⁰⁰
GCC Elite XL 1208	\$3990. ⁰⁰
GCC Elite XL 808	\$2849. ⁰⁰
GCC Elite XL 608	\$2290. ⁰⁰
HP Deskwriter 660 C	\$395. ⁰⁰
HP Deskwriter 560 C	\$334. ⁰⁰
HP LaserJet 5 MP	\$1015. ⁰⁰

Apple 14" Multiscan	\$333. ⁰⁰
Apple 15" Multiscan	\$422. ⁰⁰
Apple 17" Multiscan	\$925. ⁰⁰
Apple 20" Multiscan	\$1978. ⁰⁰
NEC XV17	\$780. ⁰⁰
SuperMatch 17XL	\$769. ⁰⁰
Viewsonic 17" GA (Multimedia)	\$882. ⁰⁰
Fax Modem: Power Book 520/540	\$324. ⁰⁰
Powerbook 190CS	\$2145. ⁰⁰
Powerbook 53008/500 monochrome	\$2140. ⁰⁰
Powerbook 5300CS 8/500 passive	\$2578. ⁰⁰
Powerbook 5300CS 16/750 passive	\$3247. ⁰⁰
Powerbook 5300C 16/750 active	\$4059. ⁰⁰
Apple EXT keyboard	\$156. ⁰⁰
Apple Keyboard	\$75. ⁰⁰
Apple Design Keyboard	\$73. ⁰⁰
MACALLY extended Keyboard	\$54. ⁰⁰
Microtek II scanner	\$371. ⁰⁰
Microtek 2SP scanner	\$468. ⁰⁰
UMAX UC 630 LE	\$376. ⁰⁰
V-RAM	
V-RAM for Power Mac 1MB	\$85. ⁰⁰
V-RAM for 9500 2 MB	\$404. ⁰⁰
512 Level II Cache	\$401. ⁰⁰
DIMMS	
8 MB	\$323. ⁰⁰
16 MB	\$565. ⁰⁰
32 MB	\$1156. ⁰⁰
64 MB	\$2151. ⁰⁰

SIMMS	
1 MB SIMMS 1x9	\$40. ⁰⁰
4 MB 72 Pin 1x32	\$137. ⁰⁰
8 MB 72 Pin 2x32	\$276. ⁰⁰
16 MB 72 Pin 8x32	\$511. ⁰⁰
32 MB 72 Pin 8x32	\$1048. ⁰⁰
16 MB for powerbook 5300	\$704. ⁰⁰
32 MB for powerbook 5300	\$1333. ⁰⁰
Smart UPS 400 VA	\$280. ⁰⁰
Newton 120 1 MB RAM	\$591. ⁰⁰
HARD DRIVES Quantum 3.5 Int.	
730 MB	\$184. ⁰⁰
840 MB	\$230. ⁰⁰
1080 MB	\$282. ⁰⁰
2100 MB	\$651. ⁰⁰
2150 MB	\$816. ⁰⁰
4300 MB	\$1052. ⁰⁰
External kit	\$75. ⁰⁰
Sanyo 4X CD Int	\$192. ⁰⁰
Syquest EZ-Drive 135MB	\$242. ⁰⁰
Syquest 88MB External	\$322. ⁰⁰
Syquest 200MB External	\$472. ⁰⁰
Syquest 270MB External	\$451. ⁰⁰
Optical 230 External	\$515. ⁰⁰
Optical 1.3 GB External	\$1526. ⁰⁰

Computer Pros

1-800-319-5MPR (4328)

International Orders (205) 521-1111

HEWLETT
PACKARD

FUJITSU

TEXAS
INSTRUMENTS

Apple®

radius
UMAX
QMS

MAC CARE INC.

Your Digital Video Electronic
Publishing Specialists

PCI/Video Card

Thunder IV 1600	\$2695
Thunder IV 1360	\$1895
Rodius 24xk Pro	\$400
Rodius x Pro	\$790
Thunder 24 GT	\$1,250
ThunderColor 30/1600	\$1,950
ThunderColor 1152	\$1275

Software

Stroto Studio Pro	\$795
Form Z	\$895
Adobe After Effects	\$1,525
Adobe Photoshop	\$395
Adobe Illustrator	\$395

We carry all lines of software!

Hard Drives

Micropolis 9GB	\$2,095
Seagate 4GB	\$1,075
Apple 700MB/500 Internal	\$185/125
FWB B.2GB Array	\$3,995
Rodius Studio Array	\$3,750

Call for any hard drive pricing

Digital Video/Hardware & Authoring

Torgo 2000	\$3,775
Rodius Telecast Upgrade	\$8,195
Rodius Telecast v.10	\$10,975
Rodius Video Vision v.2.0	\$2,975
Media 100	\$7500
Electric Image	Coll
UVW-1800-SP	Coll
PVW-2800-SP	Coll
UVW-1600-SP	Coll
UVW-1400-SP	Coll

Memory

64MB Dimms	\$2,075
32MB Simms/Dimms	\$895/1150
16MB Simms/Dimms	\$450/595
BMB Simms/Dimms	\$295/375

SOJ for wholesale

Macintosh Systems

PM B100/110 • 16/2GB/CD	\$3,250
PM B100/110 • 32/4GB/CD	\$3,950
PM B100/100 • 16/2GB	\$3,175
PM B100/100 • 16/4GB	\$3,575
PM 7100/80 • B/500	\$1,675
PM 7100/80 • B/700/CD	\$1,795
PM 6100/66 • B/500CD	\$1,350
PM 6100/66 • 16/500/DOS	\$2,150
PM 9500/132 • 16/2GB/CD	\$4,895
PM 9500/120 • T6/1GB/CD	\$4,195
PM 8500/120 • 16/1GB/CD	\$3,895
PM 8500/120 • 32/4GB/CD	\$4,995
PM 7500/100 • 16/500/CD	\$2,595
PM 7500/100 • 16/1GB/CD	\$2,850
PM 7200/90 • B/500/CD	\$1,850
PM 7200/75 • B/500/CD	\$1,595

Imagesetters • AGFA • Linotype • ECRM

New & factory refurbished. Call for
special national/international discounts!Phone 714-375-6390
Fax 714-375-6397
Technical 714-375-6395
International Dealers wanted

800-429-7779

CIRCLE 405 ON READER SERVICE CARD

Targa Workstation



\$15,995

Lease \$365
per monthPM 9500/120/64MB/4GB/CD
Torgo 2000 PCI, Adobe Premiere 4.0,
17" Color Monitor, Apple Extended II,
Adobe After Effects. With Editing BoyRadius Video
Vision BlowoutYours for
only \$2975!

Super Station!

9500 64/4GB/24 bit, View 20" Monitor,
GCC 120B, AGFA 1200dpi, Photoshop,
PageMaker and Extended Keyboard

0 down \$400 a month!

Media 100 Workstation



\$23,995

Lease \$539
per monthPM 9500/120/80MB/4GB/CD
Media 100, Suite Deal! (FX, CG, EDI,
Platinum), Extended Key., After Effects,
17" Color Monitor. With Editing BoyView Sonic
Monitor Blowout20" Monitor \$995
17" Monitor \$595
14" Monitor \$225

Low Cost Station!

B100 100/24/2GB, AGFA 1200dpi,
Photoshop, PageMaker and Extended
Keyboard, View 17" Monitor

0 down \$150 a month!

Lease 1 day approval and shipment. Wow!



Serving you since 1988

LOW RATE BUSINESS LEASING
IS AVAILABLE

Memories

DIMMS

8MB • 64BIT • 168PIN	\$299	#M1628
16MB • 64BIT • 168PIN	\$549	#M1625
32MB • 64BIT • 168PIN	\$1029	#M1622
64MB • 64BIT • 168PIN	\$2049	#M1619
128MB • 64BIT • 168PIN	\$4309	#M1616



MAC 72 PIN SIMMS 2K Referesh

4MB • 32BIT • 72PIN 70NS	\$151	#M1613
4MB • 32BIT • 72PIN 60NS	\$154	#M1601
8MB • 32BIT • 72PIN 70NS	\$299	#M1610
8MB • 32BIT • 72PIN 60NS	\$299	#M1598
16MB • 32BIT • 72PIN 70NS	\$499	#M1607
16MB • 32BIT • 72PIN 60NS	\$499	#M1595
32MB • 32BIT • 72PIN 70NS	\$999	#M1596
32MB • 32BIT • 72PIN 60NS	\$999	#M1604

Standard 30 PIN Memory

1MB • 8BIT • 30PIN 70NS	\$35	#M1592
4MB • 8BIT • 30PIN 70NS	\$121	#M1583
16MB • 8BIT • 30PIN 70NS	\$499	#M1566
PowerBook 520/520C/540/540C Modules	150 Modules	
4MB	\$162	#M1560
8MB	\$316	#M1517
16MB	\$599	#M1514
32MB	\$1129	#M1511



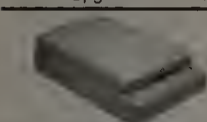
8MB, 64BIT 70NS DIMMS	\$359	#M1448
16MB, 64BIT 70NS DIMMS	\$689	#M1451
32MB, 64BIT 70NS DIMMS	\$1194	#M1454
64MB, 64BIT 70NS DIMMS	\$2362	#M1457



EAsycolor 1600/16 PCI	\$599	#V9177
EA 21" Monitor & Calibrator	\$55	#M6646
PhotoShop Board PCI	Call	#V4533

ATI XClaim GA PCI graphic board

Graphic accelerator for PowerMac, support resolution up to 1600x1200		
w/2MB VRAM	\$349	#V9165
w/4MB VRAM	\$469	#V9162
2 VRAM Upgrade Board	\$229	#V9159



MICROTEK
Better Images Through Innovation

ScanMaker Series

III w/PhotoShop	\$1999	#S8444
Trans. Adapt. for III	\$139	#S8469
IISXP w/PhotoShop	\$649	#S8455
IISP w/Color It! & OmniPage Direct	\$479	#S8456
II w/ColorIt & OmniPage Direct	\$379	#S8453
IIHR w/PhotoShop	\$729	#S8447
IIHR w/Color It! & OmniPage Direct	\$589	#S8450
IIG	\$239	#S8459



UMAX
The Magic of Color

Vista S8 Pro+	\$789	#S8509
PowerLook Pro+W/Trans. Adapter	\$1949	#S8519
UC1260 Pro+	\$799	#S8512
Vista S6 Pro+	\$739	#S8507
*Photoshop, Kais PowerTool (SE), KPT PowerPhotos CD, Pixar (Typestry & 128CD)		
Vista S6 LE+	\$569	#S8506
UC1260 LE+	\$739	#S8515
Vista S8 LE+	\$659	#S8511
*Photoshop LE, OmniPage Direct OCR, Corel Professional Photos CD		
Vista T630LE	\$499	#S8524
Umax Transparency Adapter for Vista	\$399	#S8527
PowerLook Transparency Adapt.	\$499	#S8551

All Returns are subject to restocking fee, must be in original package, condition & needs an RMA#
All Prices reflect a Cash Discount. Any other method is 2% to 3.2% higher.
Prices are subject to change without notice.
Not Responsible for typos or technical errors.

International Call: 818-708-6388
Customer Service and Technical support
Call: 818-708-6388

Fax: 818-708-6399

To Order, Call Toll Free 1-800-223-4622

Fax: 818-708-6399

PowerMac 9500

132MHz • 604 RISC • PCI

272MB • 8GB • CD 600i	\$15440	#A1222
144MB • 4GB • CD 600i	\$9899	#A1225
80MB • 2GB • CD 600i	\$7299	#A1228
48MB • 2GB • CD 600i	\$6199	#A1232

9500 / 132 MHz

80MB • 2GB • CD 600i

PressView21SR • Keyboard

\$10,349 #A1234



120MHz • 604 RISC • PCI

272MB • 8GB • CD 600i	\$14699	#A1201
144MB • 4GB • CD 600i	\$9499	#A1203
80MB • 2GB • CD 600i	\$6999	#A1206
48MB • 1GB • CD 600i	\$5555	#A1209

PowerMac 8500

120MHz • 604 RISC • PCI

16MB • 1GB • CD 600i	\$3999	#A1320
48MB • 2GB • CD 600i	\$5299	#A1324
80MB • 2GB • CD 600i	\$6299	#A1327

8500 Complete System

40MB • 1GB • CD • 17" Monitor • Keyboard
\$5795 #A1600

ATTO Technology

ExpressPCI-SC(SingleChannel) PCI	\$349	#A4518
ExpressPCI-MC(multiChannel) PCI	\$759	#A4519
SiliconExpress IV NuBus	\$877	#A4515
ExpressStripe RAID L0 PCI	\$339	#A4517

FWB PCI Technology

JackHammer Accelerator Board **\$399** #A4417

SONY Tape Drives External

SDT 5000 8GB(Compression) 4mm	\$999	#D2558
Retrospect 2.1(w/purchase of a Drive)	\$99	#S1016



ARTZ II 6X8 ADB Tablet W/Erasable Pen	\$298	#T9500
ARTZ II 12x12 ADB Tablet W/ Erasable Pen	\$399	#T9503



Optical Storage
PINNACLE
MICRO

Optical Apex 4.6GB	\$1599	#E7236
Optical Tahoe 230 (W/Cart)	\$699	#E7228
RCD 1000 w/ Toast Software	\$1449	#E7246

GCC TECHNOLOGIES

Elite XL 616 16ppm, 600dpi	\$2599	#P3208
Elite XL 608 16ppm, 600dpi	\$2299	#P3204
Elite XL 808 16ppm, 600dpi	\$2699	#P3201
Elite XL 1208 16ppm, 600dpi	\$3769	#P3209

EPSON

Stylus Pro InkJet Printer	\$795	#P3288
ES-1200C Pro Scanner	\$1179	#S8533
Transparency unit	\$628	#S8537



The complete picture.

Studio Scan IISi	\$899	#S8477
ARCUS II	\$1899	#S8482

Apple Printers

Personal LaserWriter 320 w/toner	\$879	#P3244
LaserWriter 16/600PS w/toner	\$2249	#P3250
Color LaserWriter12/600PS w/toner	\$6399	#P3253
LaserWriter 4/600PS w/toner	\$869	#P3256
Color StyleWriter 2400 w/cartridge	\$439	#P3259
Color StyleWriter 2200 w/cartridge	\$399	#P3282
StyleWriter 1200 w/cartridge	\$259	#P3265
StyleWriter II	\$159	#P3279

Address: 6924 CANBY AVE UNIT#104
RESEDA CA. 91335

Hours: Mon-Fri, 8AM to 6PM (Pacific)

Power PC PowerBook 5300 Series



5300cs 100MHz/ 8/500	\$2499	#A1130
5300cs 100MHz/ 16/750	\$3199	#A1133
5300c 100MHz/ 8/500	\$3349	#A1121
5300c 100MHz/ 16/750	\$4092	#A1118
5300ce 117MHz/ 32/1GB	\$6299	#A1115
Duo 2300c 100MHz/8/750	\$3399	#A1106

Performa 6200CD 75MHz

603 w/FPU 8MB RAM • 1GB HD • 4X Apple CD
Apple 15" Monitor • Apple Design Keyboard & Mouse • 1.4MB SuperDrive
14.4Fax/Modem w/ Speaker
Phone& Answering Machine
\$1899
#A1190



radius

Radius PCI Card

PrecisionColor 8/1600 PCI	\$469	#V9114
ThunderColor 30/1600 PCI	\$1899	#V9102
ThunderColor 30/1152 PCI	\$1499	#V9105
Thunder 30/1600 PCI	\$1159	#V9108
Thunder30/1152 PCI	\$759	#V9111

Radius NuBus Card

SpectrumSeries V 24 Bit	\$399	#V9180
Thunder 24 GT	\$1339	#V9126
Thunder IVGX 1152	\$1817	#V9129
Thunder IVGX 1360	\$2249	#V9132
Thunder IVGX 1600	\$2849	#V9135

Radius Video Editing

Video Vision ProPak	\$7999	#V9189
Video Vision Studio 2.5.1	\$3349	#V9144
Studio Vision 4GB Array	\$4444	#V9186
SpigotPower AV	\$739	#V9138
Spigot Pro AV	\$1169	#V9192

Radius Monitors

Precision View 17	\$859	#M6606
PrecisionColor17	\$999	#M6603
Press View 17SR	\$1899	#M6600
Intellicolor Display 20e	\$1999	#M6617
Press View 21SR	\$3059	#M6609
PrecisionView 21	\$2159	#M6614



DAYSTAR
DIGITAL

100MHz, PowerPro 601	\$1199	#A4500
Quadra 610, 650, 700, 800, 950,		
Centris 610, 650 (610 needs an adapter)		
100MHz Turbo 601	\$1199	#A4509
IIci, IISi, IIVx, IIVi and perform 600		
66MHz PowerCard 601	\$629	#A4512
100MHz PowerCard 601	CALL	#A4498
Performa, Quadra, LC470, LC570, 605, 630		

HP DeskJet 850C \$549 #P3229	5MP 600DPI,6PPM, 3MB \$999 #P3232
660c 600X300, 3PPM	\$379 #P3223
Deskwriter 600	\$299 #P3220

SONY

MultiScan15SF1

\$489 #M6438

Sony 17st	\$845	#M6579
Sony 20SE	\$1899	#M6576

XV17	\$729	#M6588
XE17	\$999	#M6591
XP17	\$1042	#M6582
XE21	\$1779	#M6594
XP21	\$2153	#M6585

APC (POWER BACKUP)

BackUp 450	\$179	#P5100
BackUp 600	\$249	#P5103



Apple Monitors

Apple Multiple Scan 15"	\$469	#M6558
Apple Multiple Scan 20"	\$1899	#M6564
Apple Vision 1710AV	\$1059	#M6629
Apple MultipleScan 14	\$449	#M6570
Apple Multiple Scan 1705	\$799	#M6638

MACMARKET IS MORE THAN JUST
ANOTHER MACINTOSH DEALER, TAKE A
LOOK AT OUR GREAT HARDWARE
SELECTION & OUR LOW LOW PRICES.
Compare & Save

PowerMac 7500

100MHz • 601 RISC • PCI

16MB • 1GB • CD 600i	\$2727	#A1414
48MB • 2GB • CD 600i	\$4299	#A1411

7500 Complete System

24MB • 1GB • CD • 15" Monitor • Keyboard
\$3629 #A1611

PowerMac 7200

601 RISC • PCI

16MB • 500MB • CD 600i 90MHz	\$1999	#A1399
24MB • 1GB • CD 600i 90MHz	\$2529	#A1403
48MB • 1GB • CD 600i 90MHz	\$3299	#A1406
80MB • 2GB • CD 600i 90MHz	\$4799	#A1409

7200 /75MHz Complete System

16MB • 500MB • CD • 14" Monitor • Keyboard \$2349 #A1604
16MB • 1GB • CD • 15" Monitor • Keyboard \$2666 #A1397

All drives are tested and come with the latest FWB HDT.

All drives come with full factory warranty.

We carry both Internal and

External drives

External Drives come with SCSI Cable &

Terminator

Quantum



	INTERNAL	EXTERNAL
1080MB FireBall(12ms)	\$289 #H1111	\$349 #H1231
2.2GB Capella(8.5ms)	\$679 #H1308	\$739 #H1310
4.3GB GrandPrix(8.6ms)	\$1019 #H1122	\$1069 #H1240



	INTERNAL	EXTERNAL
2.5GB	\$929 #H1243	\$999 #H1261
2.5GB-W	\$1045 #H1246	\$1099 #H1264
4.2GB	\$1299 #H1249	\$1359 #H1267
4.2GB-W	\$1379 #H1252	\$1445 #H1270

Elite 9 SERIES

9GB	\$2059 #H1255	\$2169 #H1273
-----	---------------	---------------

Polaroid

SprintScan 35 Slide Scanner

\$1499 #S8545



Pivot 1700

\$949 #M6597



Nikon
ELECTRONIC IMAGING

CoolScan External	\$1189	#S8497
SuperCoolScan External	\$1929	#S8503

Macintosh® Systems & Peripherals

PowerMacs

7200/75	8/500-CD	\$1598.00
7200/90	16/500-CD	\$2099.00
7500/100	16/500-CD	\$2798.00
8500/120	16/1GB/CD	Call
9500/132	16/2GB/CD	\$4995.00

For Other Mac Systems Call

Performas

6220-640DOS-6200-6116	-5215/CDs	Call
-----------------------	-----------	------

PowerBooks

PB 5300ce	32/1GB/mod	\$6325.00
PB 5300c	8/500	\$3795.00
PB 5300es	8/500	\$2995.00
PB 540's, 520's		Call

Monitors

Apple Multiscan 14"		\$358.00
Apple Multiscan 15"		\$438.00
Apple Multiscan 17"		\$958.00
Apple Multiscan 20"		\$1899.00
Radius — NEC — Sony		Call

Memory 72Pin

4MB-70ns/60ns	\$139.00/Call
8MB-70ns/60ns	\$280.00/Call
16MB-70ns/60ns	\$478.00/Call
32MB-70ns/60ns	\$895.00/Call

Memory DIMMs

8MB	\$307.00
16MB	\$537.00
32MB	\$995.00
64MB	\$2069.00

Hard Drive's

2.0GB Seagate (32430N)	\$799.00
3.0GB Micropolis AV (1936AV)	\$825.00
4.0GB Seagate (15230N)	\$1025.00
9.0GB Micropolis (AV 1991)	\$1899.00

Please Call For Other Peripherals Pricing

Digital Video and Imaging Solutions,

Betacam SP/D2 Quality, Non-linear Digital Video, Editing and Post Production Work Station at 1/2 of competition prices!

Leasing

Please Call Our E.D.I.T. Department.

PC MAC
SYSTEMS
COMPUTER SALES & SERVICE

1720 E. Garry, Suite 105 • Santa Ana, CA 92705

Order only **1-800-809-9357**

Inquiry: **714-660-PC-MAC (7262)**

Fax: **714-660-7114**

International Calls Welcome

All Major Cards Accepted
Please Call For Best Pricing & Service

CIRCLE 414 ON READER SERVICE CARD



Mac Components Engineered

Int'l: 714-453-8278 Fax: 714-727-3713

TO ORDER CALL

1-800-5000 MAC

Hard Drives!

Quantum*

	Seek	Wty	Internal	External
Maverick 540	14ms	2yr	\$155	\$215
Lightning 730	11ms	2yr	\$175	\$235
Fireball 1GB	12ms	3yr	\$275	\$335
Capella 2GB	8.5ms	5yr	\$665	\$725
Grand Prix 4GB	8.6ms	5yr	\$975	\$1035
Atlas 4GB	8ms	5yr	\$1269	\$1329



30-Day Money-Back Guarantee on all Hard Drives!

	Seek	Wty	Internal	External
2.1GB Hawk 2LP	9ms	5yr	\$769	\$829
2.1GB B'cuda 2LP	8ms	5yr	\$909	\$969
4.3GB Hawk 4	9ms	5yr	\$965	\$1025
4.3GB B'cuda 4	8ms	5yr	\$1259	\$1319
9.1GB Elite 9	10ms	5yr	\$2125	\$2225

MICROPOLIS

2.0GB M4221	8.9ms	5yr	\$849	\$909
2.0GB M4221AV	8.9ms	5yr	\$919	\$979
4.3GB M3243	8.9ms	5yr	\$1175	\$1235
4.3GB M3243AV	8.9ms	5yr	\$1225	\$1285
9.0GB M1991	12ms	5yr	\$2125	\$2225
9.0GB M1991AV	12ms	5yr	\$2225	\$2325

196 Technology Dr., Ste. K, Irvine CA 92718
International and dealer sales welcome! Government, Education and Corporate POs welcome! Visa, M/C, Discover, AMEX - OK!! Must call for RMA number before returning merchandise. Prices and availability subject to change...please call for latest (& best) pricing!!!

Systems, Storage and SAVINGS!



Custom configuration systems available! All MCE hard drives are thoroughly tested and carry a 30-day Money-Back Guarantee along with the full manufacturer's warranty. External drives come with SCSI Director formatting software, quality SCSI cable, power cord and terminator.

Power Macs!

Power Mac 7200/75	8/500/CD	\$CALL
Power Mac 7200/90	8/500/CD	\$CALL
Power Mac 7500/100	16/500/CD	\$CALL
Power Mac 7500/100	16/1000/CD	\$CALL
Power Mac 8500/120	16/1000/CD	\$CALL
Power Mac 9500/120	16/1000/CD	\$CALL

We carry the full line of current Apple products!

Faster SCSI!

	Seek	Wty	Internal	External
Seagate 2.1GB B'cuda2W	8ms	5yr	\$1015	\$1075
Seagate 4.3GB B'cuda4W	8ms	5yr	\$1345	\$1405
Micropolis 2.0GB M4221W	8.5ms	5yr	\$915	\$995
Micropolis 4.3GB M3243W	8.5ms	5yr	\$1329	\$1389

Atto Silicon Express II	\$515
Atto Silicon Express IV	\$825
Atto Express PCI SC	\$339
Atto Express PCI MC	\$755

Monitors/CD-ROM Drives!

Philips 17B Color Monitor	\$769
Radius PrecisionView 17	\$865
Radius MultiView 21	\$1829
Sony 4X CD-ROM Int/Ext	\$185/\$235

CIRCLE 491 ON READER SERVICE CARD

MAC SALES

800-946 6221

Tel./Orders 800-946 6221 *

Fax. 818-501 4940

International Calls. 310-571 0506

International Fax. 310-571 5010

Government, Schools, Fortune 500 and 1000 Purchase Orders welcome. All systems can be custom configured. Next Day air FedEx available. Visa / Master Card / American Express accepted. Please Fax your request for special quotes. Prices are C.O.D. cash/cashier check

Power Macintosh

132 MHz & 120 MHz	
9500/132 MHz	4899
9500/120 MHz	4289

NEW

7200/75	8/500/CD	Call
7200/90	8/500/CD	1789
7500/100	16/500/CD	2499
7500/100	16/1GB/CD	2789
8500/120	16/1GB/CD	3849
8500/120	16/2GB/CD	4229

110 MHz & 100 MHz

8100/110	16/2GB/CD	3479
8100/AV	16/1GB/CD	3249
8100/100	16/1GB/CD	Call
8100/100	16/700	2439
7100/AV	16/700/CD	Lowest
7100/80	8/700/CD	Lowest
7100/80	8/500	Lowest
6100/66	DOS	2199
6100/66	8/500/CD	1489
6100/66	8/500	Call

Quadra

Q. 950	8/Floppy	1639
Q. 950	8/1GB	1899

Custom configuration available

NEW PowerBooks

PB 190	/66	1749
PB 190CS/66		2089
5300	/100 8/500	1979
5300CS/100	8/500	2469
5300CS/100	16/750	3089
5300C	/100 8/500	3299
5300C	/100 16/750	4039
5300CE/117	32/1.1GB	5879

NEW Performa

631CD	8/500	1329
638 CD	8/350/VI/TV	1339
6116CD	8/700	1599
5200CD	8/800	1849
5215CD	8/1GB	2039
6200CD	8/1GB	1849
6205CD	8/1GB/28.8Mdn	1949
6220CD	16/1GB/VI/TV	1849
6218CD	16/1GB	Call
6230CD	16/1GB/MPEG	2489
6300/100	16/1.2GB/CD	2599

Apple Accessories

Apple CD 600e	299
Apple Video / TV	227
Quicktake 150 Mac/Win	627

Apple Printers

LaserWriter	320	699
LaserWriter	360	1179
LaserWriter	4/600PS	829
LaserWriter	16/600PS	Call
LaserWriter Pro 810		2399
LaserWriter	12/600PS	5969

*with kit

Apple Monitors

14"	Multi Scan	335
15"	Display	Call
17"	Display	915
1710 AV	AppleVision	999
20"	Display	Call

Workgroup Servers

All Models Available

6150/66	16/700/CD	2069
6150/66	Apple Share	2659
8150/110	1GB/CD/AS	4479
8150/110	1GB/CD/ASHR	4489
8150/110	1GB/CD/INTRNT	4079
9150/120	16/2GB/CD	5479
9150/120	1GB/AS/CD	7499
9150/120	2GB/CD/DATA/INTRNT	7039

Hewlett Packard

DeskWriter	660	279
DeskWriter	660C	389
DeskJet	850	539
DeskJet	1600CN/1200CP	Call
LaserJet	5MP	979
LaserJet	4M+	1839
LaserJet	4MV	2689
ScanJet	4C	889

SONY Monitors

1425	14"	299
15 sf	15"	449
17 sf	17"	829
17 se	17"	1019
20 se	20"	1889

GCC Printers

Elite XL608	6Mg, 600dpi	2199
Elite XL616	8Mg, 600dpi	2479
Elite XL808	12Mg, 800dpi	2789
Elite XL1280	24Mg, 1200dpi	3889
Elite XL1280	Super Size	5519

SYQUEST - I OMEGA

SYQST 200Mg Ext, W/Carl	469
SYQST 270Mg Ext, W/Carl	469
I OMEGA ZIPP	199
I OMEGA Jazz 1GB	569

RADIUS

Super Mtch	17XL	739
Precision View	17	849
Precision Clr	17XL	789
Super Match	20+	1469
MultiView	21	1729
Intelli Color	20e	Call
PrecisionView	21	2189
PressView	21SR	2943
All Thunder cards		Lowest
Video Vision Studio		Call

EPSON

Stylus Color	525
ES-1200C Pro Mac	1219

WACOM

Art Pad	4x5	139
Art Pad	6x8 ADB	299
UDArtz II	12x12 Stylus	409

NEC Monitors

15 XV	15"	429
17 XV	17"	739
21 XV	21"	1795

All prices and availabilities are subject to change with out any notice. Not liable for typographical errors. All shipping charges for C.O.D. orders must be secured by credit card. All returns MUST be in original sealed re-saleable condition. All returns Must have the Return Authorization Number written on the box. There is a 25% restocking charge at discretion of Management. No returns are accepted without written authorization.

CIRCLE 477 ON READER SERVICE CARD

MDW Technologies

WE'LL BEAT ANY PRICE. CALL NOW!!

HARD DRIVES

SEAGATE

1.0GB ST31230N	11ms	\$359.
2.1GB ST32430N	9ms	\$795.
2.0GB BARRACUDA	8ms	\$895.
4.3GB ST15230N	9ms	\$995.
9.0GB ST410800N	12ms	\$1995.

QUANTUM

1.0GB QM3180FB	10ms	CALL
2.1GB QM32150AL	8ms	\$795.
4.3GB QM34301GP	8ms	CALL

MICROPOLIS

2.1GB 4221	8ms	\$825.
3.1GB 1936	12ms	\$795.
4.3GB 3243	8ms	\$1095.
9.0GB 1991	12ms	\$1995.

Call for current pricing.

WE SPECIALIZE IN HIGH PERFORMANCE DRIVES FOR MACs

GOVERNMENT, CORPORATE, UNIVERSITY PO's ACCEPTED

818-703-0084 FAX 818-313-8949

1-800-883-7483

CIRCLE 430 ON READER SERVICE CARD

WANTED:

USED MACS!

BUY • SELL • TRADE

Top \$ Paid Via FedEx Next Day Air!

Friendly, courteous service from the Pacific NW!

PACIFIC COMPUTER EXCHANGE

PORTLAND, OR

1-800-790-3881

FAX 503-239-8424

CIRCLE 451 ON READER SERVICE CARD

Need Help Fast?

Call for Typesetters, Graphic Artists, Programmers, Network Installation, On-Site Memory/Mac Installs & More

(800) WE'RE MAC

Washington DC • 202.338.4163 • Baltimore •

New York City • 212.924.3979

Philadelphia • 215.972.0105

Kansas City • 913.338.4386

St. Louis • 314.862.6227



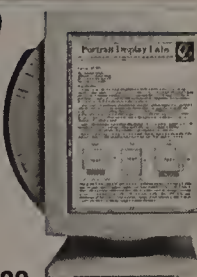
MacSpecialists

The people to power your Mac!™

CIRCLE 475 ON READER SERVICE CARD

Pivot 17" on sale \$999

Hot key between portrait and landscape modes • Mac/Windows compatible • 3-year warranty • .28 dot pitch • MPRII/Energy Star • Doesn't require special video card • .26 dot pitch only \$1049 • from Portrait Display Labs



17" Multiscan Color Monitor .26 dp (New) — \$579

17" Multiscan Trinitron Monitor .25 stripe pitch (New) — \$689

19"/20" Multiscan Color Monitor to 1280x1024 (New) — \$999

20" Philips Multiscan Trinitron Monitor to 1600x1280 (Refurb) — \$1379

20" Sony 20se Multiscan Trinitron Monitor to 1600x1280 (New) — \$1799

RAPIData



800 316-8816

14 Moses Court, Sacramento, CA 95823

CIRCLE 500 ON READER SERVICE CARD

MACMAIL

CALL WITH THE LOWEST PRICE EVER CALL

MACS

iiNEW POWERMACS!!

PMAC7200/75-8/500/CD ..\$1598

PMAC7200/90-8/500/CD ..\$1798

PMAC7500/100-16/500/CD ..\$2598

PMAC7500/100-16/1G/CD ..\$2829

PMAC8500/120-16/1G/CD ..\$3825

PMAC8500/120-16/2G/CD ..\$4275

POWERMACS

PMAC6100/66-8/500\$1298

PMAC6100/66-8/500/CD ..\$1398

PMAC7100/80-8/700/CD ..\$1765

PMAC7100/80AV-16/700/CD ..\$2098

PMAC8100/100-8/700 ...\$2375

PMAC8100/110-16/700/CD ..\$2765

PMAC8100/110-16/2G/CD ..\$3335

PMAC9500/120-16/1G/CD ..\$4470

PMAC9500/132-16/2G/CD ..\$5120

UPGRADES

•SE HABLA ESPAÑOL

•Int'l Orders Welcome

•Leasing Plans

•FEDEX-UPS-Etc...

•Prices may change

•Price represent cash discounts

PERFORMAS

631/CD/8/500\$1548

638/CD 8/350/TV\$1548

640/CD/DO5/12/500\$2198

5215/CD/8/1G\$2155

6116/CD/8/700\$1845

6220 16/1G/TV\$2398

6200/CD/8/1G\$2120

Prices includes Apple Display, Design Keyboard & Software

PRINTERS

5W 1200\$255

COLOR SW 2400\$410

PERSONAL LW 320 W/Tnr \$755

LW 4'600 PS W/Tnr\$849

LW PRO 16'600 W/TNR ..\$1990

COLOR LW 12'600 W/Kit ..\$6189

GCC PRINTERS CALL

APPLE CD 600 E\$305

EXTENDED KEYBOARD ..\$143

DESIGN KEYBOARD\$83

MONITORS

Apple MultiScan 14"\$339

Apple MultiScan 15"\$454

Apple Multiscan 17"\$949

Apple 1710 AV\$1049

Apple Multiscan 20"\$1878

Radius PressView 21sr ..\$2955

Radius Intellicolor 20e ..\$1890

Thunder Color 30/1600 ..\$1858

Thunder 30/1152\$749

Precision Color 8/1600 ..\$455

POWERBOOKS

POWERPC 5300 CS 100 8/500 ..\$2690

POWERPC 5300 CS 100 16/750 ..\$3298

POWERPC 5300 C 100 8/500 ..\$3525

POWERPC 5300 C 100 16/750 ..\$4230

POWERPC 5300 CE 117 32 1.1G ..\$6125

PB 190/66 & 190/66 CS CALL

SYQUEST DRIVES

MACMAIL

Miami, Florida 1-800-622-6844

International call (305) 639-9646



800-MAC-6844

CIRCLE 523 ON READER SERVICE CARD

STOP SCSI Problems

SCSIVue™ Active Terminator

Benefits:
• Improves SCSI Bus Performance
• Less Errors; More Reliable Data Transfer
• Diagnoses Problems • Analyzes Signal Quality

Features:
• Active Regulation • Fast 50 & Fast Wide 68
• Status Indicators • Gold Contacts

SCSIVue™ Gold Diagnostic Cables

Benefits:
• No Loss Of Important Data
• Faster Performance
• Test Cable Integrity

Features:
• Diagnostic Indicators • Large Ferrite Filters
• Triple Shielding (Unique Design)
• Double Gold 20u" Plated Connectors
• Extra Heavy 26 Gauge Wire • 40 Styles in Stock

SCSIVue™ Teflon Internal Cables

Benefits:
• Less Errors, Ultimate Performance
• Silver Wire Improves Signal Quality

Features:
• Perfect 90 Ohm Impedance Match • Custom in 1 Day
• Triple Pronged Connector With Gold contacts Silver Wire

SCSIVue™ 2-1 Active SCSI Switch

Benefits:
• Share Devices Between 2 Computers
• Up to 14 Devices to 1 Computer

Features:
• 2-1 Active Digital Switch/Repeater
• Regenerates SCSI Signal for Long Runs

Granite The SCSI Solution Company
Ph: 510-471-6442 Fax 510-471-6267
D•I•G•I•T•A•L 3101 Whipple Rd. Union City, CA. 94587

CIRCLE 408 ON READER SERVICE CARD

COMPUTER GRAPHIC & NETWORKING

We custom configure and test your system. Specialized in Pre-Press, Publishing, Digital Video production. WE BUY • SELL • TRADE Competitive Leasing Rates are Available. EASY MONTHLY PAY WITH EVERY ORDER!

PowerMacs

9500 132/8-2GB	\$4570
9500 120/40-2GB	5535
8500 24-700	3999
8500 32-1GB	4625
8500 132Mhz 16-1GB	4240
7500 32-1GB	3225
7500 16-700-CD	3065
7500 8-500	2480
7200 90/8-500	1699
7200 75/8-500-CD	1575
6100 66/8-500-CD	1300
Call for config. not listed	

Powerbooks

5300c 24-715	\$4420
5300c 24-500	3920
5300cs 36-540	CALL
5300cs 8/16-750	2995/Call
520c 4-240	Call
Call for 190 prices	
Demo Powerbooks	
Duo 230/210 4-80 850/Call	
540/520	CALL
180c 8-160	1550
145 - 170 -160-165c	CALL
170 4-160	950

Upgrades

Same day Upgrade No down Time!!	
Q840/800 to 8500/120	1599
8100 to 8500/132Mhz	1850
8100 to 8500/120Mhz	1499
Quadra 950 to 9150	899
Q 610 / 660 to 6100	450
PB 500 to 5300	CALL
PB 180 to 5300cs	1590
PB 180C TO 540C	CALL
All PowerBook Upgrade	CALL
Si-LCII-Q700 to Power PC	CALL
Call for Upgrades not listed	

Parts

L.B. Q840/950	Call/790
L.B. 7100/66/80	899/1099
8100/80/100	Call/1490
Si Ci Vx	175/290/290
Floppy 1.44/ Mouse	119/49
Demo Macs	
8100/80 8-500	1850
9500 132Mhz16-2GB	3950
8500 120	2890
Q 800/ 840	1390/1690
Mac II Ci 8/80	550
Q650/660AV/Ci	CALL

Lease

Power Mac 8500 /120	
40MB RAM - 2GB HD "	
17" Monitor Ext KB	\$154
Power Mac 7500 /100	
40MB RAM - 1GB HD "	
17" Monitor Ext KB	\$116
9500 /132-64-2gb	\$166
Call us with your list of Equip. Same Day & Affordable Leasing.	
Preforma	
Call for latest prices. 6200/6220/6115/640/5215	

Memory

30 PIN 1/4/16	22/117/415
72 Pin 4/16/32	125/245/Call
Dimms 8/16/32	312/529/Call
4X CD	250/310
3.5" 2GB. / 4GB	650/1025
We Pay Top \$\$\$ For Your Mac & Mem.	
TRADE YOUR MAC FOR NEW ONE	
Prices are subject to change.	

TEL: 310-441-4771 10922 Pico Blvd. Los Angeles, CA 90064 Fax: 310-441-4770

CIRCLE 432 ON READER SERVICE CARD

RCD1000 recordable CDROM

Easily create audio,
video, or data CDs in minutes

\$1389.⁹⁹

UMAX PowerLook

1200/9600 dpi, 30bit
color, 1 pass
scanner.

Free KPT,
Typestry,
MagicScan,
Photoshop, and
more with purchase!

\$1869.⁹⁹

MICRO OUTLET
800-801-4MAC

1GB External Hard Drive

\$329.⁹⁹

Fast and reliable new Quantum
Fireball includes cable, terminator,
and FWB formatting software.

APEX™ 4.6 GB External Optical Hard Drive

NEW!

Faster than the average hard drive,
lower cost-per-megabyte, thirty-
year shelf life. Magneto Optical /
Rewritable. Avg. seek time
17msec, transfer rate 4.5 MB/sec.

\$1459.⁹⁹

Free 4.6 GB cartridge
with purchase.

POWERMAC

9500/120	16/1GB/CD	\$ 4150
9500/132	16/2GB/CD	4800
8500/120	16/1GB/CD	3799
8500/120	16/2GB/CD	4199
7500/100	16/500/CD	2525
7500/100	16/1GB/CD	2725
7200/75	8/500/CD	1499
7200/90	8/500/CD	1699
8100/100	8/700	2315
8100/100	16/700/CD	2650
8100/100AV	16/1GB/CD	2850
7100/80	8/700/CD	1725
7100/80AV	16/700/CD	1995
6100/66	8/500/CD	1395
6100/66	16/500/DOS	2199

POWERBOOKS

190	8/500	\$ 1925
190CS	8/500	2065
5300CS	8/500	2625
5300CS	16/750	3229
5300C	8/500	3359
5300C	16/750	4069
5300CE	32/1GB	CALL
DUO2300	8/500	CALL
520C	4/240	1675
520C	12/320/FM	2725
540C	4/320	3295
540C	12/500/FM	4050

QUADRA / PERFORMA

Quadra 630	4/500	\$ 945
Performa 631	8/500/CD	CALL
Performa 640	8/500/CD/DOS	1845
Performa 6116	8/700/CD	1529
Performa 5215	8/1GB/CD	CALL
Performa 6200	8/1GB/CD	1895

MONITORS

Apple	Multiscan 14"	\$ 359
Apple	Multiscan 15"	445
Apple	Multiscan 1710	1025
Apple	Multiscan 20"	1850
Sony	CPD15SF1 15"	499
Sony	CPD17SF1 17"	859
NEC	XV15 15"	465
NEC	XV17 17"	775
MAG	DXF17	620
SuperMatch	21TXL	2069
Radius	Pressview 21T	3185

CD ROM

Pinnacle	RCD1000	\$ 1389
(2x Recordable/includes TOAST and 2 CDs)		
Kodak	PCD225 2x Record	2065
Kodak	PCD600	19849
Apple	600E Quad Speed	299

HARD DRIVES

Apple	700MB 3.5"	\$ 189
Quantum	1GB Fireball 3.5"	289
Seagate	2GB Barracuda 3.5"	979
Quantum	4GB GranPrix 3.5"	959
Apple	700MB External	249
Quantum	1GB Fireball External	329
Conner	2GB External	715
Seagate	2GB Barracuda Ext.	1029
Quantum	4GB GranPrix Ext.	1035
SyQuest	EZ135	239

SCANNERS

Visioneer	PaperPort	\$ 289
AGFA	StudioScan IIsi	815
HP	Scanjet IILC	915
UMAX	Vista-S6 / Phtshp.LE2	549
UMAX	UC1260 / Phtshp.LE2	699
Microtek	ScanMaker III / Phtshp.	2325
Microtek	ScanMaker IISP	449
Epson	1200C	925
Nikon	Coolscan	1295
Nikon	ScanTouch AX1200	1175

SOFTWARE

Adobe Photoshop 3.0.4	\$ 399
Adobe Premier 4.0	499
MacroMedia Director 4.0	759
Pagemaker 6.0	399
Fractal Design Painter 3.1	299
SoftWindows 2.0 PwrMac	279
Filemaker Pro 2.1	89
Adobe Illustrator 5.5	299
QuarkExpress 3.3 (PowerMac/68kMac)	639/585
Form Z 2.7	SPECIAL CALL
Electric Image	SPECIAL CALL

MODEMS

Apple	GeoPort Telecom Kit	\$ 128
Supra	ExpressModem288	179
Supra	FaxModem288	225
GlobalVillage	Teleport Gold II 14.4	120
GlobalVillage	Teleport Platinum 28.8	225
GlobalVillage	PowerPort Mercury 19.2	315

PRINTERS

Apple	LW 4/600PS	\$ 795
Apple	LW Select 360	1049
Apple	LW 16/600PS	1795
Apple	LW 12/600PS	6125
HP	DeskWriter 600C	295
HP	LaserJet 5MP	1025
HP	LaserJet 4MV (11x17)	2715

MISC.

Apple	Design Keyboard	\$ 79
Connectix	QuickCam	95
MouseSystems	Optical Mouse	49
Wacom	ARTZ 6x8	310
Radius	Videovision Studio 2.0	3100
TrueVision	TARGA2000 - PCI bus	3999

LEASE SPECIALS

LOW RATES • **FAST TURNAROUND**

LOW DOWN • **100% TAX DEDUCTIBLE**

Prices quoted are cash discount prices
and are subject to change without
notice. Returns subject to 15%
restocking charge.

2785 Pacific Coast Highway #178
Torrance, CA • 90505

MICRO OUTLET
800-801-4MAC

Phone: 800-801-4622 Phone: 310-533-0496
Fax: 310-533-0501 / Email: Microult@aol.com
C.O.D./MasterCard/Visa/Discover/AmericanExpress

SPECIAL! **ACCELARRAY** Raid Arrays

2 TO 64 GB

- Up to 30 MB/sec sustained transfers
- Plug and play convenience
- 2-year warranty - parts and labor
- AV Drives - Standard and Wide

For VideoVision, TARGA, and Media 100
on Quadra and PowerMac Systems

starting at **\$795.⁰⁰**



CIRCLE 472 ON READER SERVICE CARD

NEW! EMAIL US AT CompuAmer@aol.com

COMPU AMERICA
The Computer Specialist
1-800-533-9005
800-533-9005 FAX 310-358-9100
310-358-9100 FAX 310-358-9100

5300c 100MHZ! 16/750 \$3999
5300cs 100MHZ! 16/750 \$3999
5300cs 100MHZ! 8/500 \$2499
5300 100MHZ! 8/500 \$1995



- 100MHz 603e CPU
- 2 PCMCIA BUS
- NEW DESIGN
- Ion Lithium Battery

9500 132MHZ! 16/750/400 \$4999
9500 120MHZ! 16/1000/400 \$4199



- 604@132MHz
- PCI BUS
- Tower Case
- 6 PCI Slots
- 4X CD-ROM

8500/120MHZ



- 120MHz
- Audio/Visual
- Video Capture
- 24bit Color

16/1000/400 \$4999
16/750/400 \$4199

7500/100MHZ



- 100MHz
- Audio/Visual
- Video Capture
- 24bit Color

16/750/400 \$3999
16/1000/400 \$4199

7200/90MHZ



- 90MHz 601
- Built in EtherNet
- 3 PCI Slots
- Desktop Case

8/500/CD \$1799
16/2000/400 \$1999

7200/75MHZ



- 75MHz 601
- Built in EtherNet
- 3 PCI Slots
- Desktop Case

8/500/CD \$1499
16/1000/400 \$1799

8100/110



- 110MHz 601
- Fastest Nubus
- Built in Video
- Tower Case

16/1000/400 \$3099

8100/100 AV



- 100MHz CPU
- Audio/Visual
- Supports 24bit
- 3 Nubus Slots

16/1000/400 \$2899

7100/80MHZ



- 80MHz CPU
- 3 Nubus Slots
- Affordable Price, FAST

8/500/CD \$1699

6100/66MHZ!



- 66MHz CPU
- EtherNet
- Optional DOS card available.

8/500/CD \$1349
16/500/CD \$1499

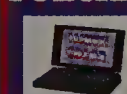
QUADRA 950



- 68040 CPU
- EtherNet
- 5 NUBUS SLOTS

8/500/CD \$1699

PowerBook 190CS



- 66/33MHz 040
- Up to 36MB RAM
- 10.4" Color
- 2 PCMCIA Slots

Mon 8/500 \$1599
Color 8/500 \$1999

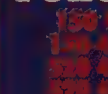
DUOS & Docks



- 100MHz CPU
- Audio/Visual
- Supports 24bit
- 3 Nubus Slots

16/1000/400 \$3099

PowerBooks



- 100MHz CPU
- Audio/Visual
- Supports 24bit
- 3 Nubus Slots

16/1000/400 \$2899

Performa

Performa

Monitors

Apple Printers

WorkGroup Server

8150/110
16/1GIG/CD/DAT
\$4399

Accessories!

16/1000/400 \$3099
16/750/400 \$4199
16/1000/400 \$4199
16/1000/400 \$4199
16/1000/400 \$4199
16/1000/400 \$4199
16/1000/400 \$4199
16/1000/400 \$4199

All prices are cash discounted. Prices subject to change without notice. Not responsible for typos. Government, Universities, and Fortune 1000 company P.O.'s are welcome.

CIRCLE 467 ON READER SERVICE CARD

LOWEST PRICES & BEST SERVICE!

POWER BOOKS

1200 240 \$1490
1200 4160 \$1695
1200 1240 \$1749
1200 1240 FAX \$2495
1200 4320 \$2895
1200 12320 mod \$3390
1200 Docks \$CALL
1200 8500 \$1995
1200 8500 \$2499
1200c 16/750 \$3049
1200c 16/750 \$4049

NuBus POWER MACS

6100/66 8/500 \$1095
6100/66 8/500/CD \$1249
7100/80 8/500 \$1550
7100/80 8/700/CD \$1740
7100/AV/80 16/700/CD \$1950
8100/100 16/700/CD \$2675
8100/100 8/700 \$2295
8100/100AV 16/700/CD \$2899
8100/110 16/2GB/CD \$3450

NEW GENERATION PCI MACS

7200/75 8/500/CD \$1499
7200/90 16/500/CD \$1995
7500/100 16/500/CD \$2549
8500/120 16/1GIG/CD \$3795
8500/120 16/2GIG/CD \$4295
9500/120 16/1GIG/CD \$4220
9500/132 16/2GIG/CD \$4835

PERFORMA

450* 20 Key, 14" Mon. \$ 689
550* 5/160/CD \$ 765
476* 4/120/14" \$ 895
575* 5/250/CD \$ 915
577* \$ 995
578* 8/320/CD \$1090
635* 8/250/CD, 15" Mon. \$1090
631 \$1588
6200 8/GIG/CD/Mon. \$1849
5220 16/GIG/CD \$2125

MONITORS

APPLE 15 15" Multiscan \$ 429
APPLE 1705 17" Multiscan \$ 879
APPLE 20" Multiscan (R) \$1399
Radius* 17" Precision \$ 749
Radius (R) 21 PrecisionColor \$1375
Sony SF 15 \$ 459
Sony SF 17 \$ 880
Supermac 17XL \$ 575

PRINTERS

Stylewriter II (N) \$ 169
Stylewriter 2400 \$ 399
Laser Select 360 \$ 999
LaserWriter 300/320 \$295/\$745
LaserPro 810 \$Lowest
UMAX 630 scanner \$ 395

SPECIALS

Check our guaranteed lowest prices on all kinds of VIDEO CARDS • SOFTWARE MEMORY • SCANNERS HARD DRIVES

FREE!

Extended II Keyboard with purchase of any Complete System

AT NO EXTRA CHARGE...

System burn-in & full inspection before we ship any system.

1-800-799-4MAC

TEL: 310-358-9000

FAX: 310-358-9100

Call for any custom-made configuration:



COMPU AGE

The source to Macintosh World

303 S. Robertson Blvd. • Beverly Hills, CA 90211



SAME DAY SHIPPING
INTERNATIONAL ORDERS WELCOME
Prices subject to change due to publication lead time.

LEASING AVAILABLE
LOW RATES! FAST, EASY
APPLICATION PROCESS

GE EXTENDED 4 YEAR
ON SITE WARRANTY
AVAILABLE FROM \$49.95
(Ask your Sales Rep for info.)

WE PAY TOP \$\$\$\$ TRADE-IN YOUR OLD MAC FOR NEW GENERATION POWER MAC

CIRCLE 542 ON READER SERVICE CARD

SHOPPERS MARKET

"The Intelligent Choice."

We MATCH! We BEAT! We DEAL!

POWERBOOK

DESIGN-
KEYBOARD

9500/132

150 4/240

16/2 GIG CD

\$999

\$72

\$4799

APPLE

POWERBOOK

7500/100

15" MONITOR

520 4/240

16/1 GIG CD

\$379

\$1299

\$2740

POWERBOOK

APPLE

PERFORMA

5300 8/500

17" MONITOR

6200

\$1929

\$7.00

\$1849

POWERBOOK

7200/90

POWERBOOK

5300 CS 8/500

16/500 CD

520 8/240

\$1979

\$1449

ALL PRICES ARE CASH DISCOUNTED AND ARE SUBJECT TO CHANGE WITHOUT NOTICE!
DEALERS CALL FOR SPECIAL PRICING!

POWERMAC				POWERMAC			
7200/75	8/500 CD	1499	630	8/250	999		
7200/75	16/500 CD	1779	630 CD	8/250 CD	1099		
7200/75	16/1 GIG CD	1999	638 CD	8/350 CD	1299		
7200/90	8/500 CD	1699	6116	8/500 CD	1699		
7200/90	16/500 CD	1979	640 DOS	12/500 DOS	1899		
7200/90	16/1 GIG CD	2199	5215	8/1 GIG CD	1999		
7500/100	8 MB	2029	6200	8/1 GIG CD	1849		
7500/100	16/500 CD	2489	6220	16/1 GIG TV	1999		
7500/100	16/1 GIG CD	2729					
7500/100	32/2 GIG CD	3629					
POWERBOOKS							
8500/120	0/0	2849	5300CE	117 Mhz 32/1GIG	6099		
8500/120	16/1 GIG CD	3699	5300C	100 Mhz 32/1GIG	5299		
8500/120	32/1 GIG CD	4249	5300C	100 Mhz 16/500	3879		
8500/120	16/2 GIG CD	4399	5300C	100 Mhz 8/750	3699		
8500/120	80/2 GIG CD	6299	5300C	100 Mhz 8/500	3499		
9500/120	0/0	3449	5300CS	100 Mhz 16/750	3089		
9500/120	16/1 GIG CD	4245	5300CS	100 Mhz 8/750	2739		
9500/120	32/2 GIG CD	5195	5300CS	100 Mhz 8/500	2489		
9500/132	0/0	3799	5300	100 Mhz 16/500	2279		
9500/132	16/2 GIG CD	4799	5300	100 Mhz 8/500	1929		
9500/132	32/2 GIG CD	5349	DUO 2300C	100 Mhz 8/500	3299		
9500/132	80/4 GIG CD	7099	190CS	8/500	2049		
6100/66	8/500 CD	1389	190	4/500	1579		
7100/80	8/500	1499	190	8/500	1749		
7100/80	8/700 CD	1749	150	4/240	999		
7100/80AV	16/700 CD	2099	520	4/240	1299		
8100/100	8/700	2299	520	8/240	1449		
8100/100	16/700 CD	2699	520	12/320 modem	2099		
8100/100	40/2 GIG CD	3949	520C	4/240	1749		
8100/100AV	16/1 GIG CD	2899	520C	12/320 modem	2399		
8100/100AV	40/2 GIG CD	4199	540C	4/320	3099		
8100/110	16/2 GIG CD	3199	540C	12/320 modem	3799		

1-800-607-2325

VISA, MASTERCARD,
AMEX ACCEPTED.

GOVERNMENT, UNIVERSITY, &
CORPORATE P.O.'s ACCEPTED!

SALES (310) 842-3700

FAX (310) 842-8130

RADIUS.

PRINTERS

PRESSVIEW 21 SR	2999	STYLEWRITER 1200	249
PRECISIONVIEW 21	1999	STYLEWRITER COLOR 2200	389
INTELLICOLOR 20 E	1899	STYLWRITER COLOR 2400	349
MULVIEW 21	1699	LASER 4/600	799
PRECISION COLOR 17	999	APPLE LASER SELECT 360	1099
PRECISION VIEW 17	899	Apple 16-600/PS	1899
PRECISION COLOR 8/1600	469	Apple 12/600PS Color	6099
THUNDER 030/ 1152	749	HP 600	289
THUNDER 30/1600	1099	HP 660C	389
THUNDERCOLOR 30/1152	1499	HP 850	539
THUNDERCOLOR 30/1600	1949	HP 1200C/PS	1499
THUNDER IV GX 1152	1799	HP 1600 CM	1889
THUNDER IV GX 1360	2099	HP 5 MP	989
THUNDER IV GX 1600	2599	HP 4M	1829
PRECISION PRO 24 X	599	HP 4MV	2649
SPIGET POWER AV	699	NIKON COOL PRINT	1449
SPIGET PRO AV	1219	FARGO Photo Fun	479
VIDEO VISION STUDIO 3.0	2999		

MONITORS

SCANNERS

APPLE 15"	379	HP IIC	929
APPLE 17"	739	EPSON ES 1200C PRO	1095
APPLE 1710 AV	1029	EPSON ES 1000	679
APPLE 20"	1879	AGFA ARCUS II	2349
SONY 15"	459	AGFA STUDIOCAN II SI	899
SONY 17 SF	879	NIKON COOLSCAN	1149
SONY 17 SEI	1099	NIKON SCAN TOUCH 1200	1129
SONY 20 SE	1849	NIKON SUPER COOLSCAN	1949
NEC XV 15"	449	MICROTEK III	1999
NEC XV 17"	769	UMAX VISTA S8 LE	669
NEC XE 21"	1799	UMAX 1260 LE	729
		UMAX POWERLOOK PRO	1949

CIRCLE 435 ON READER SERVICE CARD

MPD
Micro Product Distributors

PowerMac's

7200/75 8/500 CD	1596.
7200/90 8/500 CD	1784.
7500/100 16/500 CD	2536.
7500/100 16/1GB CD	2818.
8500/120 16/1GB CD	3757.
8500/120 16/2GB CD	4227.
6100/66 8/500	1324.
6100/66 8/500 CD	1461.
7100/80 8/500	1495.
7100/80 8/700 CD	1680.
7100/80AV 16/700 CD	2190.
8100/100 8/700	2374.
8100/100 16/1GB CD	3017.
8100/100AV 16/1GB CD	3196.
8100/110 16/2GB CD	3653.
9500/120 16/1GB CD	4454.
9500/132 16/2GB CD	5118.

Performa's

631CD 8/500	1548.
638CD 8/350 TV	1548.
640CD DOS 12/500	2200.
5215CD 8/1000	2175.
6116CD 8/700	1764.
6220CD 16/1000 TV (*)	2364.
6200CD 8/100	2175.
(*) Display not included	

PowerPC PowerBook's

5300cs/100 8/500	2538.
5300cs/100 16/750	3196.
5300c/100 8/500	3385.
5300c/100 16/750	4136.
5300ce/117 32/1.1GB	6017.
Duo 2300c/100 8/750	Call
Duo 2300c/100 20/1.1GB	Call

PowerBook's

190/66 4/500	1769.
190cs/66 4/500	2103.

Printers / Keyboard's / CD's

SW 1200	255.	LW 4/600 PS	845.
Color SW 2400	425.	Extended Kybd	136.
Personal LW 320	760.	Design Kybd	74.
LW Pro 16/600	1,999.	Apple CD600E	298.
Free CD Software w/your CD purchase (while supplies last)			

Displays

14" Multiple Scan	332.
15" Multiple Scan	454.
17" Multiple Scan	935.
1705 Multiple Scan	716.
Apple Vision 1710 AV	1009.
20" Multiple Scan	1878.

1 - 8 0 0 - 9 9 3 - 5 6 7 3

Your PowerMac Number One Source.

- 30 Day Money Back Guarantee (**)
- FREE FedEx 2nd Day Delivery on CPU's
- 48 Hours Turn-Around on Warranty Repairs
- School & Government PO's Welcome

Please call for Custom Configurations. Prices reflect 3% discount for CASH ONLY!
Prices subject to change without notice. (**) Certain conditions apply. All Major Credit
Cards accepted. Int'l orders Welcome, Call (305) 477-4441 or Fax Us at (305) 477-4602.

POWERMACS

8100AV 100MHZ!
AUDIO VISUAL
16/1GIG/CD
\$2829



MONITOR AND KEYBOARD SOLD SEPARATELY.

7200 SERIES! **8500 120MHZ!**
7200/75 8/500/CD \$1499 **16/2GIG/CD \$4229**
7200/90 8/500/CD \$1749 **16/1GIG/CD \$3899**

UPGRADE YOUR PM
7100, 8100 TO AV \$399
6100 \$499

6100/66	8/500	\$1349
6100/66	8/500/CD	\$1399
7100/80	8/500	\$1699
7500/100	16/500/CD	\$2699
7500/100	16/1GIG/CD	\$2799
8100/100	8/700	\$2379
8100/100	16/700/CD	\$2779
8100/100	16/1GIG/4X CD	\$2899
8100/100AV	16/1GIG/4X CD	\$2899
8100/110	16/2GIG/CD	\$3199
8500/120	16/1GIG/CD	\$3899
8500/120	16/2GIG/CD	\$4299
8500/120	48/2GIG/CD	\$5399
9500/120	16/1GIG/CD	\$4299
9500/120	16/2GIG/CD	\$4699
9500/132	16/2GIG/CD	\$4899

QUADRA

605	4/160	\$699
610	8/230	\$949*
630	8/250	\$899
650	8/230	\$1599*
660AV	8/80	\$899*
800	8/500/CD	\$1799*
950	8/0 OR 8/230	\$1599/1699
950	16/1GIG/CD	\$2399
CENTRIS 660AV	8/500/CD	\$999*

APPLE WORKSATIONS & SERVERS

9150	8/2GIG/CD	\$3699
8150	16/1GIG/CD	\$2999
8150	8/500	\$2699
WGS 8150	16/1GIG/CD/appl shr	\$3999
WGS 95	32/2GIG/256K/DAT	\$3695

APPLE PRINTERS

Pro 810 Duplex, 20ppm, 11x17	\$2299
Color LaserWriter 12/600	\$6299
LW Select/Personal 300	\$339*/479
LW Select 320	\$649
Select 360 w/Toner	\$1149
LaserWriter 16/600/PS	\$1649
StyleWriter II	\$199
Color StyleWriter PRO	\$479

HP PRINTERS

DeskWriter 660c	\$429
DeskWriter 320/SHEET	\$369
DeskJet 1200c (PS)	\$1649
LaserJet 5MP	\$1049
LaserJet 4M Plus	\$1849
LaserJet 4MV 11x17	\$2799
PowerEnvelope Feed	\$279

GE 4 YEAR ON SITE WARRANTY!					
ASK YOUR SALES REP REGARDING GE EXTENDED ON SITE WARRANTY					
\$100 to \$350	\$351 to \$500	\$501 to \$1200	\$1201 to \$2000	\$2001 to \$3000	\$3001 to \$5000
\$49.95	\$79.95	\$139.95	\$169.95	\$199.95	\$259.95

LA's LEADING COMPUTER STORE!



(800) 689-3933 ORDERS ONLY!

(310) 473-2535 FAX (310) 312-9041

International Orders CALL (310) 477-3280.

Come Visit Us At MacWorld Expo In San Francisco At Booth 2633

POWERBOOKS

NEW! 5300'S

5300	8/500	\$1969
5300CS	8/500	\$2469
5300CS	16/750	\$3099
5300C	8/500	\$3349
5300C	16/750	\$4049
5300CE	32/1GIG	\$5999



PC CARD MODEM AVAILABLE FOR 5300 SERIES
NEW! 190CS 8/500 \$2129

540C	4/320	\$3099
540	4/240	\$1899*
520	4/160	\$1299*
520C	4/240	\$1699*
520C	12/500/MODEM	\$2399
150	4/120	\$999
165,180,180C,		\$CALL\$

POWERBOOK DUO

NEW DUO 2300		\$CALL\$
Duo 250	4/200	\$1399*
Duo 250	12/200/Modem	\$1799*
Duo 280	12/240/Modem	\$2299
Duo 280C	4/340	\$2699

RADIUS MONITORS

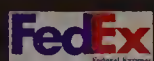
SUPERMATCH 17T 17"	\$749
PRECISION COLOR 17"	\$699*
PRECISION COLOR 20"	\$1099*
PRECISION COLOR 21"	\$1299*
INTELLICOLOR 20E 20"	\$1799
SUPERMATCH 21"	\$1699*
PRESSVIEW 21"	\$2499*
20" MONOCHROME	\$499*
21" MONOCHROME	\$579*

MONITORS

NEC XP15 15" Color	\$599
NEC XV17 17" Color	\$759
NEC XP17 17" 1280X1024	\$1049
NEC XP21 21" 1600X1200	\$2099
SONY 1425 14"	\$329
SONY 15SF 15"	\$479
SONY 17SF 17"	\$869
SONY 20SE 20"	\$1849

WE WILL BEAT ANY ADVERTISED PRICE!
SUBJECT TO STOCK ON HAND & VERIFICATION OF ADVERTISEMENT

University, Gov't & Fortune 1000 P.O.'s Accepted!



NEXT DAY AND SAME DAY SHIPPING.
WE SHIP WORLDWIDE!

OPEN SATURDAY, VISIT OUR SHOWROOM!

PERFORMAS



637
8/350/CD
\$1149

INCLUDES 15" MONITOR & KEYBOARD

635 5/250/CD \$999*
INCLUDES 15" MONITOR & KEYBOARD
636 4/250 CPU ONLY \$639*

600	4/160 CPU ONLY	\$449*
630	4/250 w/FPU CPU ONLY	\$799
631CD	8/500/CD w/Monitor	\$1249
638CDV	8/350/CD w/Monitor	\$1329
640CD	12/500/CD w/Monitor	\$1949
5215CD	8/1GIG/CD w/Monitor	\$1899
6116CD	8/700/CD w/Monitor	\$1699
6200CD	8/1GIG/CD w/Monitor	\$1899
6220CD	16/1GIG/CD	\$1949

BUILT-IN MONITOR PERFORMAS

ON SALE! 578
8/320/CD/Mod
\$1149



COMPLETE SYSTEMS!

550 5/160/CD \$799* **575 5/250/CD/Mod. \$959**
REFURBISHED NO MODEM \$899*

577 5/320/CD \$899*
LC575 8/320/CD \$1039

APPLE MONITORS



15" MULTISCAN
\$399 ON SALE!

14" AV	\$299*
14" MultiScan	\$379
17" MultiScan	\$969
17" 1705	NEW! \$849
17" 1710AV	\$1049
20" MultiScan	\$1899

*** Reflects Refurbished Units.**
Prices Subject To Change Without Notice.
CALL FOR LATEST PRICE
ALL PRICES REFLECT C.O.D. CASH DISCOUNT

CIRCLE 497 ON READER SERVICE CARD

UPGRADES

UPGRADE

Quadra 950, 900 to Workgroup 9150/120Mhz	\$1950
Quadra800*, 840AV & 8100s to 8500/120Mhz	\$1650
C610, Quadra610 or 660 to 6100/66	\$790
Quadra650, C650 to 7100/80	\$995
Quadra800* or 840AV to 8100/100/110	\$1150-1400
Powermac 8100/80 to 8100/100/110	\$900-1150
Powermac 8100/80 to 9500/120	\$1795
Powermac 8100/100 to 9500/132	\$1495

* Add \$100 to the Upgrade Price



ICN

INTERNATIONAL COMPUTER & NETWORKING

SPECIAL

9500/132 16/2G/CD	\$6095
ATI card, 17" Color Monitor & Kybrd	

PERFORMAS

630 8/250/CD/Mod/14" Mon/KB	\$1270
638 8/350/CD/Mod/TV-Vi/15" Mon/KB	\$1424
640 12/500/CD/DOS/15" Mon/KB	\$1889
6116 8/700/CD/Mod/14" Mon/KB	\$1590
6200 8/1G/CD/Mod/15" Mon/KB	\$1935
6220 16/1G/CD/Mod/KB	\$1935
6230 16/1G/CD/Mod/15" Mon/KB	\$2535

PERIPHERALS

POWERMAC

9500/132 16/2G/CD	\$4725
9500/120 16/1G/CD	\$4195
8500/120 16/1,2G/CD	CALL
8100/110 16/2G/CD	\$3199
8100/100AV 16/1G/CD	\$2958
8100/100 16/1G/CD	\$2780
8100/100 8/700	\$2160
7200/90 8/500/CD	\$1799
7200/75 8/500/CD	\$1499
7500/100 16/1G/CD	\$2789
7100/80AV 16/700/CD	\$2160
7100/80 8/700/CD	\$1689
6100/66 8/500/CD	\$1375
6100/66-DOS 16/500/CD	\$2150

WE BUY AND SELL NEW
AND USED MACS
CUSTOM CONFIGURATIONS

TRADE IN YOUR OLD MAC FOR A NEW POWERMAC

FOR TECHNICAL INFO. OR THE MOST RECENT PRICING VISIT OUR WEB SITE AT
<http://www.icni.com>
icn@icni.com

EXCHANGE ANY OLD POWERBOOK TO NEW 5300 SERIES
UPGRADE TO 8500/120 MHZ

DEMOS

9500/120 16/1G/CD	\$3795
8500/120 16/1G/CD	\$3585
Q950 8/500	\$1585
Q840AV 8/230	\$1895

WORKGROUP SERVERS

9150/120 16/2G/CD	\$5645
9150/120 16/2G/CD/DAT	\$6819
9150/120 16/2G/CD/DAT-R	\$4495
8150/110 16/1G/CD	\$4665
6150/66 16/1G/CD	\$1450

R-Refurbished

VIDEO CARDS

DOS Card for PM 6100	\$675
Processor Upgrade Card	\$611
Apple AV Card	\$495

POWERBOOKS

5300cs/100Mhz 8/500	\$2545
5300c/100Mhz 16/750	\$3985
5300/100Mhz 8/500	\$1985
190cs 8/500	\$2045
150 4/120	\$999
540c 4/320-R	\$2795
520c 4/500	\$1925
520 4/240-R	\$1465
DUO 280c 4/320	\$2711

SYSTEM 7.5 UPGRADE ...\$25

Prices Subject to Change Without Notice
Call for Latest Price
All Prices reflect C.O.D. Discount Cash Prices

MONITORS

APPLE 14" Multiscan	\$379
APPLE 15" Multiscan	\$429
SONY 15" SF	\$479
NEC 15" XE	\$589
APPLE 1710AV	\$969
SONY 17" SF	\$869
APPLE 20" Multiscan	\$1899

PRINTERS

Apple LW Pro 810	\$2295
Apple LW 16/600	Call
Apple Color Printer 12/600	\$6299
Apple LW 360	Call
Apple Color Style Writer Pro	\$325
Apple Style Writer 2400	\$420
Apple Style Writer 2200	\$412
Apple Style Writer 1200	\$275
GCC XL 808	\$2869
GCC XL 616	\$3919
GCC XL 1208	\$2489

TEL: (310)445-6600

FAX: (310)445-6611

FAX TOLL FREE FROM JAPAN: 00-31-114211
2045B South Barrington Ave., LA, CA 90025

WE WILL BEAT ANY
VERIFIABLE PRICE

GENUINE PARTS

CIRCLE 439 ON READER SERVICE CARD

Sales (818) 787-3282
 Dealer " 780-9457
 Export (818) 989-0318/787-0816

COMPU.D
 International, Inc.

■ Immediate Response To Fax Requests
 ■ Price List By Fax Back (818) 787-4548
 ■ Quotations By Fax (818) 787-5555
 (818) 787-2111

TOSHIBA
radius
UMAX
Quantum

Call Us For:

- Unbeatable Prices
- Customizing Systems
- Business Leasing
- 110/220Volt Products

Seasons Greetings

Power Mac
PowerBook
Quadra/Performa
Printers/Monitors
Accessories

Rely On Us For:

- Huge Inventory
- Fast Delivery
- Technical Support Service
- Internet Address

74673.1503@COMPUSERVE.COM

COMPAQ
IBM
WACOM
hp HEWLETT
 PACKARD
SONY

Worldwide Shipping
 with Special Rates

DHL **FedEx**

1-800-929-9333

CIRCLE 434 ON READER SERVICE CARD

We Have It All **The Systems & Peripherals Specialists** Why Pay More!

QUANTUM DRIVES

850 MB Trailblazer 14ms \$240
 1.08 GB Fireball 11ms \$285
 2.0 GB Capella 8.5ms \$685
 2.0 GB Atlas Series 8ms \$870
 4.2 GB Grand Prix 8.6ms \$995
 4.3 GB Atlas Series 8ms \$1355

We Also Carry: Syquest Drives & Media,
 Apple, Sony & NEC Monitors, Microtek &
 Umax Scanners, Supra & Global Village
 Modems And Much, More! Call Now!

SEAGATE DRIVES

1.2 GB Hawk 2LP 9ms \$385
 2.5 GB Barracuda 2LP 8ms \$925
 2.5 GB Barracuda 2 Wide 8ms \$1035
 4.2 GB Barracuda 4 8ms \$1299
 9.0 GB Ellite 9 11ms \$2099

All Hard Drives Come With A 30 Day Money Back Guarantee
 External Hard Drives Add \$60, For Full Height Drives Case Add \$120

MICROPOLIS DRIVES

2.1 GB M4221 8.5ms \$888 \$944
 4.3 GB M3243 8.5ms \$1195 \$1245
 9.0 GB M1991 12ms \$2095 \$2195
 2.1 GB M4221 Wide 8.5ms \$935
 4.3 GB M3243 Wide 8.5ms \$1350
 9.0 GB M1991 Wide 12ms \$2390

AV SERIES

CD & OPTICAL DRIVES

SONY (CD) CDU55 EXT. \$195
 TOSHIBA (CD) 5301 EXT. \$355
 TOSHIBA (CD) 3601 EXT. \$375
 630 MB (OP) Fujitsu \$625
 1.3 GB (OP) HP-1716T \$2099
 1.3 GB (OP) Tahiti III \$2199

MODEMS & MONITORS

TELEPORT GOLD II 14.4 \$89
 TELEPORT PLATINUM 28.8 \$229
 POWERPORT Platinum 28.8 \$325
 POWERPORT Mercury 19.2 \$325
 RADIUS PRECISION VIEW 17" \$945
 RADIUS 21" VIEW MONITOR \$2199

CALL FOR MEMORY PRICING

24 Hour Fax Line (909) 270-0011
 Educational, Corporate PO's & Credit Cards Welcome
 All items carry manufacturer's warranty. All prices subject to change without notice.
 RNA number required for returns. Not responsible for typographical errors.

MICROSOURCE (800) 308-0099

CIRCLE 495 ON READER SERVICE CARD

MAC PROFESSIONAL INC

TEL. 800.244.4622 **BEST PRICES GUARANTEED!** FAX. 818.719.9115

6430 VAREL AVE., #105, WOODLAND HILLS, CA 91367

POWER MAC

7200/75 8/500-CD 1533
 7200/75 24/1000-CD 2333
 7200/90 16/500-CD 1995
 7200/90 24/1000-CD 2444
 7500/100 16/1000-CD 2777
 7500/100 32/2000-CD 3777
 8500/120 16/1000-CD 3777
 8500/120 32/2000-CD 4777
 9500/120 16/1000-CD 4244
 9500/120 32/2000-CD 5095
 9500/132 16/2000-CD 4888
 9500/132 48/4000-CD 6395

POWER BOOKS

5300 8/500 2095
 5300 16/750 2750
 5300cs 8/500 2495
 5300cs 16/750 3195
 5300c 8/500 3388
 5300c 16/750 4175
 5300ce 32/1600 6250
 540c CALL
 520/520c CALL
5300 P.B. MEMORY
 4/8/12MB 185/340/540
 16/20/32MB 630/960/1250

QUADRA

950 8/1000 1975
 950 16/2000 2595
 950 40/4000 3695
 605 8/250 849

PERFORMA

638 8/350-CD-TV 15" 1399
 640 12/500-CD DOS 1949
 6200 8/1000-CD 1888
 6220 16/1000-CD-TV 2195

APPLE MONITORS

14/15/1705 MULTISCAN 349/449/749
 17"/1710 AV 949/1025
 RADIUS PRECISION COL 17" 888
 SUPER MAC 17XL 748

PCI GRAPHIC CARDS

ATI 4MB 16BIT 495
 EA RESEARCH 1600/16 24BIT 565
 RADIUS THUNDER 30/1152 777
 RADIUS THUNDER 30/1600 1099
 RADIUS THUNDER COL 30/1600 1855
 RADIUS THUNDER COL 30/1152 1555

500 P.B. MEMORY

4/8MB 175/312
 16/32MB 555/1155

SYQUEST & DRIVES

88/270MB 365/475
 200/EZ DRIVE 475/235
 IOMEGA ZIPDRIVE 199
 1GIG JAZ 575

PRINTERS

APPLE, HP, QMS, TI
 FARGO, STAR, CITIZEN, GCC

MAC PROFESSIONAL INC 'THE PROFESSIONAL CHOICE'
 • UNIVERSITY, GOVERNMENT, & FORTUNE 1000 P.O.'S ACCEPTED! •

CIRCLE 514 ON READER SERVICE CARD

Computer Revelations Inc.

1 800 275-9924 in NY 516 737-0800

Full Line of Apple Parts!

COMPAQ **hp** **HEWLETT** **IBM**
radius **Microsoft** **SUPERMAC**
FUJITSU **AGFA** **FWB**
 and many more!

POWERMAC

6100 /66 8500 \$1549
 6100 /66 8/500CD \$1675
 7100/80 8/500 \$2599
 7100/80AV CALL
 8100 /100 8/700 CALL
 8100 /100 8/700 CALL
 8100/110 16/2GIG CALL

PERFORMA

PER 631CD \$1799
 PER 640CD \$2399
 PER 5215CD CALL
 PER 6200CD CALL

PRINTERS

LWRITER 360 \$1489
 LWRITER 16/800PS \$1999
 HP 4ML \$799
 HP 5MP \$999
 HP 1600 CM/PS \$1999
 STYLEWRITER 2400 \$499

SUPERMAC / SONY

17T \$899
 17SF \$899
 THUNDER IV CALL
 THUNDER 24 CALL
 CPD 15SF \$485

RADIUS/ NEC

PREC VIEW 21 CALL
 PREC VIEW 17 CALL
 PC 24X \$875
 PC24XP \$299

POWERBOOK

520 4/160 \$1599
 5300CS/100 CALL
 5300C/100 CALL
 5300CE/100 CALL

SCANNERS

UMAX 630LE \$499
 UMAX VISTA 6LE \$839
 UMAX 1260 \$929
 POWERLOOK \$2199
 HP SCANJET IIC \$969
 HP SCANJET IIP \$499
 EPSON ES 1200 \$1279
 AGFA ARCUS II \$2399

APPLE

INTERNAL
 SUPERDRIVE
 \$149
 w/ Exchange

CALL ON ALL SOFTWARE!

WORDPERFECT MAC \$245.
 MICROSOFT WORD MAC \$249.

We carry A
 Full Line Of: **Tektronix**

**CALL US FOR YOUR
 LEASING
 NEEDS!**

Commercial Only.

CIRCLE 474 ON READER SERVICE CARD

PowerMac
9500's
8500's,
7500's,
7200's,
are here!

331E DANTE COURT
 HOLBROOK NY 11741 FAX 516 737-0923
 NEW & USED BOUGHT & SOLD
 Ask about our EXTENDED WARRANTY

DATA

MICRO COMPUTER INC.
DEALERS & INTERNATIONAL SALES WELCOME!

800•345•1234
TEL (310) 398•3300
FAX (310) 391•2488

• Next day shipping • Govt, University's & Corp. P.O.'s welcome •

POWERMAC		POWERBOOKS	
6100/66 8/500/CD	1395.	5300CE 32/1Gig	5998.
6100/66 16/500/Dos	1995.	5300C 16/750	4195.
7100/80 8/500	1545.	5300C 8/500	3395.
7100/80 8/700/CD	1765.	5300CS 16/750	3245.
7200/75 8/500/CD	1545.	5300CS 8/500	2595.
7200/90 8/500/CD	1865.	5300 Mono 8/500	2064.
7500/100 16/500/CD	2995.	190CS 8/500	2065.
7500/100 16/1Gig/CD	2795.	190 8/500	2095.
8100/100 16/700/CD	2745.	540C 4/320	2995.
8100/100 16/2Gig/CD	3345.	520C 4/160	1675.
8500/120 16/1Gig/CD	3895.	520C 4/240	1795.
8500/120 32/4Gig/CD	5126.	520 4/160	1395.
9500/120 16/1Gig/CD	4295.	PERFORMAS	
9500/120 32/4Gig/CD	5295.	575 5/250CD	990.
9500/132 16/2Gig/CD	4895.	578 8/320CD	1106.
9500/132 32/4Gig/CD	5995.	5215 16/1Gig CD	1999.
•CENTRIS 650 8/250•1095. •		638 8/1GIG	1445.
PERORMA 6110/6112 CALL		640Dos 16/1Gig/CD	2070.
		6116 8/700CD	1712.
		6200 16/1Gig/CD	1899.
		6220TV 16/1GigCD	1899.

RADIUS	
Spectrum Power-1152	445.
Thunder/24 24Bit	595.
Thunder/24GT	1336.
PrecisionColor 8XJ	499.
Prec.Pro 24X/24XK	
Prec.Color 8/1600 Pci	469.
Radius PhotoEngine	829.
Thunder 4GX-1152	1895.
Thunder 4GX-1360	2245.
Thunder 4GX-1600	2778.
Thunder/30-1152	789.
Thunder/30-1600	1148.
Thunder Color/30-1152	1574.
Thunder Color/30-1600	1897.
Video Vision StudioPro2	2983.
15" Pivot Full Page GS	499.
20" TPD/20GS	695.
21" TPD/21GS	795.
Precision Color/17	795.
Precision Color 20/21	1495.
Intellicolor Display 20E	1835.
PrecisionView 17	842.
Pressview 17SR	1846.
Pressview 21T	2595.
Pressview 21SR	2995.
SuperMatch 17XL	735.
SuperMatch 20 Plus	1245.
SuperMac 21" Color	1249.
SuperMatch 21TXL	1946.

PERFORMAS	
475 4/160	574.
476 4/230	644.
550 5/160CD	844.
630 4/250, kb	695.
635 5/250CD, KB	895.

PRINTERS	
Color Laser12/600PS	5945.
LaseWriter Pro 810	2195.
LaserWriter 16/600	1695.
LaserWriter 4/600	869.
L.W. Select 360	1045.
L.W. Select 300	495.
Personal 320	645.
Personal 300	395.
Color StyleW. 2400	399.
StyleWriter 1200	299.
Panasonic 300dpi	*445.
•Postscript/Laser/2mb	
Epson Stylus Color	499.
DeskJet 850C 600 dpi	565.
Deskwriter 320 w.sht	379.
Deskwriter 660C	419.
Deskwriter 600	319.
HP Color Laserjet	5595.
HP Laserjet 4MPlus	1937.
HP Laserjet 4MV	2685.
HP Laserjet 4Plus	1369.
HP Laserjet 4V	1885.
HP Laserjet 5MP	1045.
Fargo Fotofun	424.
Fargo Primera Pro	1196.
Fargo Pictura 310	3196.
GCC Elite-XL608	2246.
GCC Elite-XL808	2889.
GCC Elite-XL1208	3988.

Pinnacle Micro	
RCD-1000 680MB	1354.
Tahoe-230 230MB	722.
Sierra 1.3GB	1739.
Sierra 2.6GB	5264.
Alta 20GB	6227.

AGFA	
Arcus II	1833.
Studiscan IIsi	887.
Hewlett Packard	
ScanJet 3c	936.
ScanJet IIsx	898.
EPSON	
ES-1000C	736.
ES-1200C	938.
ES-1200CPro	1117.
MICROTEK	
Scanmaker II	391.
Scanmaker IIHR	776.
Scanmkr.LE IIHR	583.
Scanmaker III	2378.
Scanmaker IISP	508.
Scanmaker IISPX	709.
UMAX	
UC1260LE	832.
UC1260Pro	928.
Vista-S6LE	631.
Vista-S6Pro	728.
Vista-S8LE	812.
Vista-S8Pro	894.
Vista-T630LE	895.
Vista-T630Soho	532.

FUJITSU DynaMO 230 optical \$ 539.

**BUSINESS
• LEASING •**

FREE DELIVERY

POWER MACS

	PRICE	LEASE
Power Mac 9500 ¹²⁰ 16/1GB/CD	4,415	111
Power Mac 8500 ¹²⁰ 16/1GB/CD	3,799	95
Power Mac 7500 ¹⁰⁰ 16/1GB/CD	2,805	71
Power Mac 7200 ⁹⁰ 8/500/CD	1,779	44
Power Mac 7200 ⁷⁵ 8/500/CD	1,625	41
Power Mac 7100 ⁸⁰ AV 8/700/CD	2,099	53
Power Mac 8100 ¹¹⁰ 16/2GB/CD	3,090	76
Power Mac 8100 ¹¹⁰ 8/0	2,409	61
Performa 5200 ⁷⁵ 8/1GB/CD/FAX	2,021	51
Performa 6200 ⁷⁵ 8/1GB/CD	1,499	38
Performa 6308/500/CD	1,069	27

PRINTERS & ACCESSORIES

Laserwriter Color	5,700	139
Apple 20" Monitor	1,960	49
Apple 15" Monitor	470	6
Stylewriter 220 Color	389	10
Stylewriter 2400B	399	10
Laserwriter 4/600	870	22
Design Keyboard	80	2
Geoport	99	3
Apple CD 600 Ext	299	8

**60 MONTHS
LEASE!**

**NO CREDIT CARD
SURCHARGES!**



MAC SPOT
1800 680-1112

FAX 305-591-4391

Lease quotes are based on a 60 months lease program, 10 % buyout option at the end of the term - Other programs available.

TOTALLY FREE DELIVERY BY FedEx

CIRCLE 482 ON READER SERVICE CARD

TEL : 818-901-6250

**We meet or beat Catalog prices
Call us Last !**

All units are bench tested before shipping.
Call us for custom configuration!

MONITORS

Apple	MultiScan 15" Display.....	\$439
	1710AV 17" /20".....	\$999-1895
NEC	Multi XE21/ XP17/ XE15.....	\$1895-1294-567
Sony	Multiscan 15SF/17SF/20SE.....	\$449-899-1869
Radius	PressView 21 SR/ Inteli 20e.....	\$2895-1895
	Precision Color 17" Inteli 20e.....	\$945-1895

BOARDS

ATI Xclaim GA PCI 4MB Graphic Board.....\$455

Radius	ThunderColor 30/1600 PCI.....	\$1855
Radius	ThunderColor 30/1152 PCI.....	\$1430
Powershop	NuBus/PCI.....	\$1825/1919
EAsycolor	1600/16 PCI 1600 x 1200 at 16-bits..	\$499

Thunder IVGX 1600/1360/1152.....\$2675-1995-1825
Video Vision Studio v2/ P'Color 24X....Call-\$629

PRINTERS

FARGO	Primera Pro Color Dyesub.....	\$1395
Apple	Stylw 2200/2400.....	\$359-447
	L.W. 4/600/16/600ps.....	\$865-1795
Kodak	XLS 8600 PS Printer.....	\$7995
HP	5MP/ 4MV/ 1200 C/PS.....	\$1045-2696-1593

We also carry NewGen, GCC, Texas Instrument.

- Due to publication time advertised prices may vary. All prices includes cash discount.
- All products carry one year minimum manufacturer's warranty on parts and labor.
- Non-Defective Returns or Shipped Orders may be subject to 20% Restocking fee.
- All Returns must have an authorization Number (RMA).
- Shipping and service fees are non-refundable.
- No Sales Tax Except in CA. Business hours are 8am to 6pm Mon-Fri.

MACMAN COMPUTER WAREHOUSE

POWERMAC

9500/120	32MB/1GIGHD/CD.....	\$4729
9500/132	16MB/2GIGHD/CD.....	\$4845
8500/120	48MBRAM/2GIGHD/CD 17" SF Sony/ Ext. KyBd	\$6295
8500/120	32MB/1GIGHD/CD.....	\$4265
8100/100	16MB/1GIG HD/CD.....	\$2899

7500/100	16MB RAM/1GIG HD/CD.....	\$2795
7500/100	40MB RAM/1GIG HD/CD 15"Color Monitor/Ext. KyBd	\$3995
7200/75	16MB RAM/500MB HD/CD.....	\$1855
7200/90	24MB RAM/1GB HD/CD 15"Color Monitor/Ext. KyBd	\$2895
7100/80	16MB RAM/700MB HD/CD.....	\$1995

PERFORMA

5215	PowerPC 603/75MHz 8MB/1GIGHD/CD 15" Color Monito & Apple KyBd/F.M	\$2195
6116	PowerPC 601/60MHz 8MB/700HD/CD 14" Plus Display & Apple KyBd/F.M	\$1695
6200	PowerPC 603/75MHz 8MB/1GIGHD/CD 15" Color Monito & Apple KyBd/F.M	\$1849

Call for the updated price on any configuration!

**To Order Call Toll Free
800-931-2001**

FAX : 818-901-6260

**Wholesale Prices To The Public!
Networking, Service & Repair Available
Fax Your Order 24 Hours A Day!**

POWERBOOK

NEW	5300CE/117 8/500.....	\$3855
NEW	5300CE/117 32/1GIG.....	\$5995
NEW	5300CS/100 8/500.....	\$2495
NEW	5300/100 8/500.....	\$2289

520C 12MB RAM/320MB HD Global
Mercury 19.2 F.M w/Carrying Case **\$2595**

DRIVE	CAPACITY	SPEED	INT	EXT
Apple	700MB	11ms	\$215	\$295
Quantum	2GB Atlas	8.6ms	\$795	\$875

Apple 2.5" 160MB External HD.....\$139

Lowest Prices on Memory!!! Call Now!

168-pin DIMM 8MB/16MB.....	\$295-\$519
168-pin DIMM 32MB/64MB.....	\$1010-\$1995
72-pin 16MB/32MB.....	\$475-\$985

SCANNERS

UMAX	PowerLook 1200 dpi Singel Scanner.....	\$2895
AGFA	Arcus II Plus w/Trans.....	\$1895
	StudioScanII SI/wTrans.....	\$1280
Nikon	Scantouch / SuperCool1000.....	\$1095-1889
Polaroid	SprintScan 35 2700 dpi.....	\$1520

We also carry /Microtek/HewlettPackard.

MACMAN International Orders Welcome
COMPUTER WAREHOUSE Bestellen Sie Per Tel/Fax und genießen
16116 Sherman Way Sie den Vorteil des tiefen U.S.\$ Kursen.
Van Nuys, CA 91406 Tel:818-901-6250 FAX:818-901-6260

CIRCLE 455 ON READER SERVICE CARD



What's a little Competition?

NO CONTEST with Macworld
on your side.

With 8,000,000 people in New York City, the competition is tough. For PAUL SCHEFFLER, account executive for MET PHOTO, a Manhattan-based service bureau, the competition in New York wasn't enough. Paul teamed with Macworld Shopper to reach beyond New York and win customers across the nation and around the globe. Now Met Photo's already THRIVING business sees PHENOMENAL GROWTH daily—Macworld Shopper sees to it that they do.



More Power For Less.

PRICES SIMPLY UNBEATABLE!



NEW POWER MACS

Power Mac 9500 ¹³² 16/2GB/CD.....	4,899
Power Mac 9500 ¹²⁰ 16/1GB/CD.....	4,199
Power Mac 8500 ¹²⁰ 16/1GB/CD.....	3,649
Power Mac 7500 ¹⁰⁰ 16/1GB/CD.....	2,699
Power Mac 7200 ⁹⁰ 8/500/CD.....	1,699
Power Mac 7200 ⁷⁵ 8/500/CD.....	1,499

POWER MACS

Power Mac 6100 ⁶⁶ 8/500/CD.....	1,299
Power Mac 7100 ⁸⁰ 8/700/CD.....	1,699
Power Mac 7100 ⁸⁰ AV 8/700/CD.....	1,999
Power Mac 8100 ¹⁰⁰ 8/700/CD.....	2,499
Power Mac 8100 ¹⁰⁰ AV 8/700/CD.....	2,699
Power Mac 8100 ¹¹⁰ 16/2GB/CD.....	3,199

NEW POWER BOOKS AVAILABLE!

PERFORMAS

Performa 5215 ⁷⁵ 8/1GB/CD/FAX.....	1,999
Performa 6200 ⁷⁵ 8/1GB/CD.....	1,499
Performa 630 5/500.....	799
Performa 630 4/250/CD.....	899

PERIPHERALS

Laserwriter Color.....	5,399
Stylewriter 2200 Color.....	369
Laserwriter 4/600.....	839
CD ROM 600 External.....	299
Apple Monitor 14".....	279
Apple Monitor 15".....	419
Apple Monitor 17".....	899
Apple Monitor 20".....	1,849

Memories, Hard Drives and Syquest also available.

MACNET

1 800 404 - 9976



All products are fully warranted. Dealers inquiries welcome.
CIRCLE 543 ON READER SERVICE CARD

Prices, availability and specifications are subject to change without notice. Prices reflect a cash discount!

CALL THE MAC EXPERTS!

Nice Price,
Nice Image Quality,
Nice Controls,
- Nice Monitor!

-MacUser Labs - Nov. 95



MacUser's Best Buy:
New! Kodak Digital Science DC
40 Digital Camera. Only \$859!

We can beat virtually any legitimate price on these lines:
• Agfa • DataProducts • Canon • DEC • Epson • Fargo • GCC • HP
• Kodak • Mag • Magnavox • Mitsubishi • NEC • Nikon • Radius
• RasterOps • Samsung • Seiko • Sharp • Sony • Umax • Xante

PowerMax Trinitron™ Monitors

Model PM15T	\$489!
.25 mm dot pitch. Resolutions up to 1280x1024.	
Model PM17T	\$839!
.25 mm dot pitch. Resolutions up to 1280x1024.	
Model PM17TE+	\$999!
.25 mm dot pitch. Resolutions up to 1600x1280.	
Model PM20T.....	\$1849!
.31 mm dot pitch. Resolutions up to 1600x1280.	

PowerMax External Hard Drives



PowerMax 500 Meg.....	\$249
PowerMax 700 Meg.....	\$289
PowerMax One Gigabyte	\$379
PowerMax Two Gigabyte	\$849

PowerMax drives come complete with a double-shielded SCSI cable (50/50 or 50/25), Drive Seven formatting software, up to a 5 year warranty, and a 30 day money back guarantee!

Call today for your free PowerMax Catalog!

800-844-3599

New Fax Line! (503) 624-1635

Local line: (503) 624-1827 • Find us on the World Wide
Web at: [HTTP://WWW.Illuminatus.Com/PowerMax](http://WWW.Illuminatus.Com/PowerMax)

**POWER
MAX**
Knowledge is Power

Customizable Mac Systems

Performa 638CD 8/350/CD/Mon....	\$1428
Performa 6214CD 8/Gig/CD	\$1378
Performa 6220CD 8/Gig/CD	\$1998
PowerMac 7200/75 8 Ram/CD	\$1468
PowerMac 7200/90 8 Ram/CD	\$1558
PowerMac 7500/100 16 Ram/CD	\$2578
PowerMac 8500/120 16 Ram/CD	\$3598
PowerMac 9500/120 16 Ram/CD	\$4048
PowerMac 9500/132 16 Ram/CD	\$4198
PowerBook 5300CS 8/500	\$2648
Powerbook 5300CS 16/750	\$3348
PowerBook 5300C 8/500	\$3498
PowerBook 5300C 16/750	\$4198
Powerbook 190 8/500	\$1858
Powerbook 190CS 8/500	\$2198

**Call for special pricing on discontinued
PowerMacs & Powerbooks**
•No one stocks everything like we do!•

Why Buy From PowerMax?

- Over 90% of our orders ship within 24 hours. We stock product, we don't go buy it when you place your order.
- We speak plain English- no technotalk or high pressure sales tactics.
- We consult with you, we want to make sure what you buy is what you need.
- Unlike most catalog outlets who try to keep prices low by limiting service options- we are a dealer who actually offers more expertise and service than most local full-priced dealers! We keep prices low through aggressive purchases, high volume and years of experience!
- All we ask is that you call a couple of the other guys first- then call us. You'll really appreciate our difference!

CIRCLE 446 ON READER SERVICE CARD

LATEST

Mac S.A.L.E INTERNATIONAL

SPECIALS



* HUGE SAVINGS ON NEW *

• Personal LaserWriter NTR •
Logic Board **UPGRADE**
With Trade-in - **ONLY \$99.00**

PowerMac 6100/66
8/250 W/CD
(CPU only)

► **\$1,299.00** ◀

New MS Word/Excel Bundle - **\$79.00**
ONLY \$49.00 With Any CPU

New Apple 8•24 VideoCard - **\$99.00**
ONLY \$89.00 With Any CPU

PowerMac 7100/80
8/700 W/CD
(CPU only)

► **\$1,579.00** ◀

* NEW *

PwrMac 8100/80 8/500 \$1799.00
PwrMac 6100/66 8/500/CD \$1279.00
Mac LC III 4/80 \$469.00
Apple Portrait Display \$375.00

Apple 12" MonoMonitor \$129.00
Laser IIf Logic Bd (Upgrade) \$349.00
Apple One Scanner \$399.00
system 7.5 (Disk or CD) \$19.00

ImageWriter II \$325.00
MacAllt Ext. Kybd. \$65.00
Apple PB Int. Data/Fax Modem \$25.00
Toner/Select 300,310,360 \$69.00

(Other Configurations Available)

* USED / * REFURBISHED *

Desktop CPU's

Mac Plus No Kbd or Mouse \$99.00
Mac Plus W/Kbd & Mouse \$149.00
Mac SE (800K) 1/0 \$199.00
Mac SE (FDHD) 1/0 \$299.00
• Mac II 1/0 \$179.00
• Mac II 4/40 \$279.00
• Mac IICX 4/80 \$375.00
• Mac IIX 4/80 \$425.00
• Mac IIFX 4/80 \$525.00
• Add 8 Bit Video Card \$50.00
Mac LC 2/40 \$299.00
Mac LC II 4/80 \$375.00
Mac LC III 4/80 \$449.00
Mac LC III 4/120 \$479.00
Mac IISI 5/160 \$449.00
Mac IICI 4/80 \$449.00
Mac Portable 2/40 \$350.00
Pwr Mac 7100/80 8/500 \$1399.00
Centris 610 4/230 \$575.00
Centris 650 4/230 \$875.00
Centris 660AV 8/230/CD \$999.00
Quadra 950 16/500 \$1499.00
Performa 200 4/80 \$449.00
Performa 400 4/80 \$375.00
Performa 410 4/80 \$375.00
* Performa 637 8/350/CD \$899.00
* Performa 6112 8/250/CD \$1149.00
(Performa's Are CPU Only)

PowerBooks

PB 100 4/40 \$499.00
PB 145 4/80 \$799.00
PB 145B 4/80 \$799.00
PB 160 4/80 \$949.00
PB 165 4/160 \$1099.00
PB 165C 4/80 \$1299.00
PB 180 4/120 \$1450.00
Duo 210 4/80 \$699.00
Duo 230 4/80 \$899.00
Duo MiniDock \$199.00
Duo Dock \$349.00
Duo Floppy Adapter \$59.00
Duo Battery Recharger \$45.00
PB Battery Recharger \$35.00
PB Int. Fax/Data Mdm \$25.00
PB 14.4 Express Mdm \$79.00
PB AC Adapters \$39.00
Apple HDI-30 System Cable
or SCSI Disk Adapter \$25.00

Video

Apple 8 Bit Video Cards \$85.00
Apple Basic Color Monitor \$149.00
Apple 13" RGB Display \$250.00
* Apple 15" MultiScan \$339.00
Apple 14" Color Display \$350.00
Apple Portrait Display \$199.00
Apple 16" RGB Display \$649.00
Radius, RasterOps, SuperMac - CALL!

Printers/Peripherals

** Personal Laser LS \$279.00
LaserSelect 300 \$299.00
Laser Select 360 \$899.00
Stylewriter \$129.00
Stylewriter II \$159.00
Portable Stylewriter \$299.00
ImageWriter II \$199.00
I/W LocalTalk Card \$59.00
Apple Color Printer \$299.00
Laser Pro 600 \$899.00
Laser 16/600 \$1399.00
Apple OneScanner \$249.00
Apple Color OneScanner- \$499.00
(\$50 OFF w/CPU Purchase)
Apple CD 150 Ext. Drive \$129.00
Apple CD 300 Ext. Drive \$199.00
Apple HDI-20 Ext. Floppy Drive \$129.00
Apple 5.25" Drive (LC/IIe) \$79.00
* Apple Design Kbd \$69.00
Apple Ext. II Kbd \$115.00
Centris/Q660AV NuBus Adap. \$49.00
Geoport Telecom Adapter \$79.00
PowerBook Carrying Case \$15.00
Apple EtherNet & Network Cards - Call!!
* Denotes Factory Refurbished

USED SYSTEM SPECIALS



Mac LC II
4/80 W/Kbd & **New**
Apple 12" Mono. Monitor

► **\$479.00** ◀
* For Color System: Add \$150



Mac Classic II
4/80, 68030 16MHz
W/ Kbd. & Mouse

► **\$449.00** ◀



Mac II ci
4/80 W/Kbd & **New**
Apple 12" Mono. Monitor

► **\$549.00** ◀
* For Color System: Add \$150



APPLE POWER CD
3-in-1 Portable CD-ROM Drive
w/Remote Control
for: Mac CD-ROM, Photo CD
& Audio Compact Discs

► **\$149.00** ◀

We Now Feature A Huge Inventory Of Parts For All Apple Product And Also Offer Extended Warranties
Visit Our Web Site At: www.getnet.com/macsale Or E-Mail Us At: macsale@getnet.com

Limited Quantities/Prices subject to change
Prices represent a Discount - off Full Price
Returns at discretion of Mgmt./15% Restocking fee

1-800-729-7031

1150 W. Alameda Dr., Ste. 1&2, Tempe, AZ 85282
(602) 858-0900 / (602) 858-9537 (Parts)

WE WANT TO BUY YOUR NEW/USED MAC EQUIPMENT

CIRCLE 401 ON READER SERVICE CARD

Parts Systems Upgrades



IIx Logic Board Upgrade

- MC68030 at 40Mhz
- SuperDrive ROMS
- 128MB maximum RAM
- 68882 math co-processor
- 8-bit stereo sound output
- FREE RAM exchange**

Mac II to IIx
\$449

Mac IIx to IIx
\$399

Mac II to IIx
with SuperDrive
\$599



AppleDrive Specials

Apple 160MB Hard Drive
PRE-INSTALLED SOFTWARE

- Macintosh System 7.1p
- ClarisWorks
- Quicken 4
- American Heritage Dictionary

Apple 250MB **\$149 new**

- MAIN BASEMENT**
- New Duo Type 1 Batteries.....15.
 - AppleCD 300i Plus.....199.
 - Newton Fax/Modem 2400.....49.
 - Appletalk Internet Router software...39.
 - PowerBook 140-180c keyboard.....49.
 - Curtis Trackball Mouse new.....39.
 - StyleWriter ink cartridges: 3 for.....29
 - ImageWriter IQ ribbon.....6.
 - LaserWriter II recycled toner.....49.
 - PowerBook Canvas Tote Case.....19.
 - Quadra 660AV NuBus Adapter.....49.
 - Personal NT Logic Bd.....79.
 - Mac II pmmu.....99.
 - CRT & Yoke Assembly.....49.
 - Mac Plus Keyboard.....49.
 - LaCie Cirrus external HD case.....79.

Macintosh Logic Board Upgrades

LCIII to Quadra 605 exchange \$299
4MB on-board RAM • 25Mhz MC68LC040 processor • supports large displays

IIsi/IIci exchange for Mac IIx exchange \$349/\$249

Centris 610 to Quadra 660AV exchange \$449
MC68040 processor at 25MHz with integrated FPU • 4MB on-board RAM

Quadra 660AV to PowerMac 6100/60 exchange \$699
PowerPC 601 at 60MHz

IIx or IIci to Centris 650 exchange \$449
4MB on-board RAM • MC68LC040 processor at 25MHz

LC/LCII to Quadra 605 exchange \$349/249
4MB on-board RAM • MC68030 processor at 25MHz • supports large displays

Classic to Classic II exchange \$199
2MB on-board RAM • MC68030 processor at 16MHz

Quadra 50 8/500

Limited Time Only

\$1499

Brand New!

One Year Factory Warranty

Macintosh Quadra 605

- 4MB RAM, 160MB HD
- LC040 at 25Mhz
- supports large displays
- 1-year warranty

monitor & keyboard sold separately

NEW \$679

only \$25

Macintosh System 7.5

CD-ROM \$35

System 7.5 at ultra-low pricing!

Performa 578

The Family Macintosh

- 33MHz C040 processor
- 16MB hard drive
- extendable hard drive
- double-speed CD-ROM
- built-in speakers & microphone
- fax-modem: 2400data, 9600 fax

PRE-INSTALLED SOFTWARE

- Macintosh System 7.5
- ClarisWorks
- Quicken 4
- Best of Home
- ClickArt Presentation
- Macintosh
- At Ease
- Greater Multimedia Encyclopedia
- Time Almanac
- Microsoft Dinosaurs on CD
- Apple Special Edition of America Online

\$1199

...and lots more!

Macintosh CPUs

- *LC550 4/160/CD\$749.
- *Performa 575 4/250/CD\$949.
- *Performa 637 8/350/CD\$899.
- Quadra 660AV 4/0\$799.
- Centris 650 4/0\$899.
- Quadra 840AV 0/0\$1599.
- Quadra 800 8/0\$1599.
- *Performa 6112/60 8/250/CD \$1149.

New Units

- Quadra 605 4/160\$649
- LCIII 4/0, no floppy or mouse\$249.
- Performa 575 8/250/CD\$1149.
- Performa 636 4/250\$699.
- WGS 6150/66 8/500/CD\$1899.
- WGS 9150 80 16/1GB\$3299
- WGS 95 32/2GB/DT\$3299.

Monitors

- Apple 13" Trinitron\$299.
- *Apple 14" Performa Plus .29\$229
- *Apple 14" AudioVision\$349.
- *Apple 15" MultiScan\$349.
- Apple 16" Trinitron\$599.
- Apple Portrait Display\$329.
- E-Machines T16-II\$699.
- *Hewlett-Packard 17" with card ..\$749.
- *Hewlett-Packard 20" with card ..\$999.
- Radius Color Pivot\$449.
- Radius TPD 19" mono\$399.
- Radius TPD 21" mono\$549
- Radius PrecisionColor/17 new ...\$899.
- Radius PrecisionColor/20\$1199.
- Radius Color Display/21\$1299.
- RasterOps Sweet 16\$599.
- RasterOps GDM-1952 20" color ..\$849.
- RasterOps 19" Hitachi color\$799.
- RasterOps 1910 19" grayscale ...\$499.

Video Cards

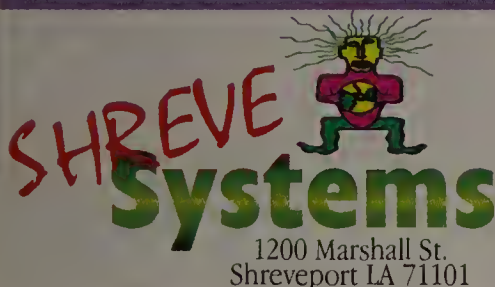
- 640 x 480**
- Apple 8-bit\$89.
 - RasterOps 208 NEW\$99.
- 832 x 624**
- E-Machines Futura II LX NEW\$599.
 - Lapis FPD card\$249.
- 1024 x 768**
- E-Machines DoubleColor LC\$149.
 - E-Machines DoubleColor SX NEW ..\$149.
 - Lapis TPD card\$299.
 - SuperMac 24 Series IV\$349.
 - SuperMac Thunder 24 NEW\$599
 - RasterOps ClearVue/GS30 NEW\$299.
 - RasterOps Paintboard Li NEW\$299.
- 1152 x 870**
- Radius PrecisionColor 24x NEW\$499.
 - SuperMac PDQ 8•24\$299.
 - RasterOps PaintBoard Turbo NEW ..\$349.
 - Apple 8•24\$229.
 - Apple 8•24GC NEW\$269.
 - Apple 4•8\$199.
- PowerBook & Duo Video Adapters**
- E-Machines PowerLink Presentor ...\$399.
 - SuperMac SuperView\$299.

Printers

- *Apple StyleWriter II\$179.
- *Apple Personal LaserWriter 300 ..\$279.
- Apple Personal LaserWriter NT ..\$599.
- Apple Personal LaserWriter NTR ..\$699.
- Apple LaserWriter IIint\$699.
- Apple LaserWriter IIintx\$899.
- Apple LaserWriter Pro 600\$1249.
- Apple LaserWriter Pro 630\$1699.
- Apple LaserWriter Pro 810 NEW ..\$2699.
- Apple Color Printer NEW\$699.
- Hewlett-Packard DeskWriter C ...\$259.

PowerBooks

- PowerBook 520 4/240\$1399.
- PowerBook 520c 4/160\$1699.
- PowerBook 170 4/80\$1099.
- PowerBook 180 4/80\$1449.
- PowerBook 165c 4/80\$1649.
- PowerBook 160 4/80\$1199.
- PowerBook 145 4/80\$999.
- PowerBook 140 4/40\$899.
- DuoDock Type 1\$399.



SHREVE Systems

1200 Marshall St.
Shreveport LA 71101

1-800-227-3971

Order toll-free Monday-Friday, 9am - 6pm CST



FAX (318) 424.9771
Customer Service (318) 424.9791
Purchasing & Information (318) 424-9791
BBS (318) 424.9713

Prices reflect a 2% cash discount and are subject to change without notice. An asterisk indicates a factory refurbished product with a Shreve Systems 120-day Warranty.

CIRCLE 425 ON READER SERVICE CARD

SYSTEMS & PERIPHERALS UPGRADES & MEMORY



Add a second keyboard, monitor and mouse up to 250 feet away from your Macintosh!

- Compatible with most Macintosh computers with detachable monitors
- Supports Macintosh Hi-Res video
- Macintosh mouse support standard at both local and remote workstations
- Switch selectable privacy mode
- No software required for operation



MAC COMPANION™

Cybox Corporation
4912 Research Drive Huntsville AL 35805 USA
(205) 430-4000 (205) 430-4030 fax



Macintosh and Mac are trademarks of Apple Computer, Inc. Cybox and Companion are trademarks of Cybox Corporation.

Dealer Program Available

Made In USA

CIRCLE 433 ON READER SERVICE CARD

Verbatim Optical Disks - With Mac or Scitex Format & Value Added Software!

5.25" R/W OPTICAL DISKS	3.5" R/W OPTICAL DISKS	MITSUBISHI DRIVES
600 MB MAC Format \$60.00	128 MB MAC Format \$22.00	230 MB \$550.00
1.2 GB MAC Format \$71.00	230 MB MAC Format \$32.00	1.2/1.3 GB \$1695.00
600 MB Scitex Format \$60.00	230 MB MAC Format w/Stacker \$39.95	
1.2 GB Scitex Format \$71.00	230 MB MAC Format w/Dantz \$39.95	
4x CD-R DISCS		4MM DAT TAPE
74 Minutes \$7.50		60 Meter \$5.95
		90 Meter \$7.50
		8MM CARTRIDGES
		112 Meter \$6.95

FOR THE FULL LINE OF VERBATIM OPTICAL & MAGNETIC MEDIA CALL 9 TO 5 COMPUTER. A FAMILY OWNED & OPERATED BUSINESS • CALL TOLL FREE 1-800-334-3282

CIRCLE 486 ON READER SERVICE CARD

BUYERS

- ✓ Large selection of over 20,000 seller listings to choose from!
- ✓ All equipment is thoroughly tested, serviced, & cleaned.
- ✓ Buyers have a two-day escrow period to check equipment.
- ✓ Bonded, licensed, and insured, escrow agents



EXCHANGE
1-800-755-3033
Open 9-7 pm M-T-F

SELLERS

- ✓ No fee for listing equipment.
- ✓ Quick turn-around on payment.
- ✓ List and browse equipment for sale on our web page.
- ✓ <http://www.uce.com>
- ✓ Retrieve price indexes on fax info line.

770-955-0569

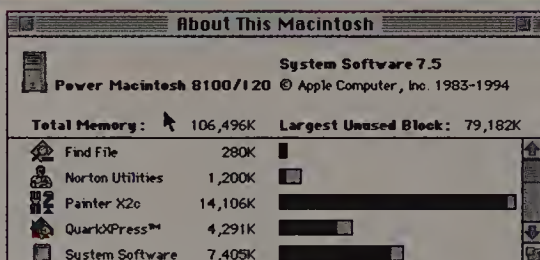
CIRCLE 478 ON READER SERVICE CARD

MACH 10 JET - CPU ACCELERATOR NEW IMPROVED DESIGN NEW LOWER PRICE

"Bloody Quick" - Mac Format "Impressive" - MacUser (UK)
"The Ideal Solution" - The Mac "A must" - MacUser (UK)

IS
AVAILABLE
FOR

- 8100 / 100 (AV)
- 8100 / 80 (AV)
- 7100 / 66 (AV)
- 6100 / 60 (AV)
- Q840AV
- Q800
- Q660AV
- C660AV
- Q650
- C610



- \$49 (suggested) to take your 8100/100 to 126MHz!!
- 20-40% acceleration in all CPU tasks
- Reliable, high specification, precision components
- User friendly manual, with many photos
- Full Technical support by qualified engineers
- 30 Day Moneyback guarantee, Lifetime warranty
- Award winning UK design

\$49



For a free information disk call any of the dealers listed below.
Dealer and Distributor inquiries invited.

Distributor	DMS	Dealer	MEMORY TRADERS	Made in The US By:	SYZYGY ELECTRONICS
Tel: 1-800-662-SIMM (7466)		Tel: 800-315-7807		Dealer Inquiries Only	
Fax: 508-975-5232		Fax: 703-522-6626		Tel: 703 522 6624 ext 213	
Lawrence MA		Arlington VA		Fax: 703 522 6626	

CIRCLE 409 ON READER SERVICE CARD

We Buy Used Memory

256K
512K
1MB
2MB
4MB
8MB
16MB
32MB
64MB
VRAM
16x SIMMs
PowerBook
Duo

We want your used RAM:

- 30 or 72pin
- Any Configuration
- Any Size
- Any Speed
- SIMMs, SIPP, & Chips
- Working or Broken
- Any Quantity

Best Prices Paid

We sell:

- 30 or 72pin
- Major Manufacturers Chips
- Lifetime Guarantee
- Free UPS Shipping
- VISA/MC No Fees
- Competitive pricing
- Any Quantity

800-315-7807

MEMORY TRADERS

Tel: 800-315-7807
Fax: 703-522-6626
1117 North 19th St. Ste. 1201, Arlington, VA 22209

ACCELERATORS

DayStar PowerPC

- PowerCard 601 \$629
- Turbo 601 66 MHz \$899
- Turbo 601 100MHz \$1265
- PowerPro 601 40/50MHz \$498
- PowerPro 601 50/66MHz \$498
- PowerPro 601 80MHz w/RAM Exp \$1465
- PowerPro 601 100MHz \$1265



Pacific MAC 1-800-622-6261

206-935-6100 • fax 206-935-7937
e-mail PACIFICMAC@aol.com
http://www.pacificmac.com

Memory Wanted

WE BUY NEW OR USED
SIMMS
WE BUY IN QUANTITY.

256K, 512K,
1MB, 2MB, 4MB,
8MB, 16MB, 32MB.

30 Pin, 64 Pin
or 72 Pin.

POWERBOOK
2MB - 28MB



We Buy in Quantity. Call Us or Send Fax.
INNOVATIVE MICRO PRODUCTS, INC.
7631 Leesburg Pike, Suite A
Falls Church, Virginia 22043
Tel: 703-848-0711 Fax: 703-848-0712

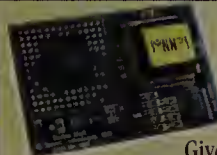
CIRCLE 462 ON READER SERVICE CARD

BEST BUYS TO RUN YOUR MAC FASTER

Accelerate Your Mac II Series & LC/LC II to 68040 Speed

Sonnet Presto 040 80/40 MHz accelerators increase Mac II series performance up to 600%. Run an LC/LC II 2.5x as fast with the Presto 040 LC 50/25 MHz card. System 7.5 compatible. Use PDS slot.

	w/FPU
Presto 040 LC, LC II.....	\$199 \$299
Presto Mac Ili, Ili*, Ili*, Ili*.....	\$299 \$399
Presto with 128K cache.....	\$399 \$499
*Adapter req'd.....	\$49



A Fast 68030 Gives Your Older Mac New Life

Give your older Mac more muscle. All Sonnet Allegros come equipped with a speedy 68030. Some units also have an FPU, cache &/or additional SIMM slots.

25 MHz Classic	1x72pin SIMM slot.....	\$199
33 MHz SE	4x30pin SIMM slots.....	\$199
33 MHz Mac II	Supports RAM Doubler.....	\$189
33 MHz Mac Ili	Plugs into CPU socket.....	\$189
33 MHz LC II	Incl. FPU & 16K cache.....	\$139
50 MHz LC III	Incl. 64K cache (opt FPU).....	\$365
NuBus Adapter 660av/Mac Ili.....	\$99/\$149	

Fastest Quadra Ever! Plug in a 100/50 MHz 68040 Board

Double speed with full compatibility. Works in Quadra/Centris 610, 650, 660AV, 700, 900. 80/40MHz unit for Centris 610.

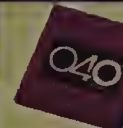
80/40 MHz.....	\$249	w/FPU.....	\$399
100/50 MHz w/FPU.....			\$499



Boost Quadra & Power Mac Speed Up to 40%

Easy to install kit..... \$59

256K CACHE	28.6MHz	C/Q610, C650
PM 61XX, 7100.....	\$125	C/Q660AV
PM 7X00, 8500.....	\$Call	40 MHz Quadra 650
		80 MHz PM61XX, 7100



Math Coprocessors for 68040 Macs

If you use graphics, CAD, Excel, or rendering programs, you will speed through applications like never before.

25MHz C610, C650, Q610, LC475, P47X.....	\$149*
33MHz LC575, LC630, P57X, P63X.....	\$249*
* with LC040 exchange	
33MHz 68882 68030-based Macs.....	\$49

SONNET TECHNOLOGIES, INC., 18004 Sky Park Circle
Irvine, California 92714, 714-261-2800 Fax 261-2461



Gov't./Corp./Education P.O.

800-786-6260



CIRCLE 463 ON READER SERVICE CARD

MEMORY

GUARANTEED LOWEST PRICES
Memory for Desktops, Laptops,
Laser Printers from Apple to Zenith

WE BUY EXCESS MEMORY
1-800-808-6242

ERITECH INTERNATIONAL
818/244-6242 fax 818/502-5059
740 N. Glendale Ave., Glendale, CA 91206

CIRCLE 469 ON READER SERVICE CARD

Dynamic Engineering

PB & Duo Accel

PB500 FPU

Portable Upgrades

MEMORY, HDD, BATTERY

POWERBOOK 100 BATTERIES

455 Park Dr., Ben Lomond, Ca. 95005
Fax 408-336-3840

DSCVR VISA/MC AmEx
(408) 336-8891

CIRCLE 411 ON READER SERVICE CARD

Acceleration for your 6100, 7100, Performa 611x, 8100/100, 8500, 9500 computer

ACCELERATE YOUR POWERMAC

Nothing beats the Equalizer. NOTHING! Get the best and forget the rest.
Turn the dial and boost the speed of a 6100/7100/Performa 611x up to 84MHz or more!
8100/100 up to 126MHz or more! 8500/9500 up to 150MHz or more!

16 speed settings!

A simple turn of the dial is all that is required to maximize the speed of your PowerMac. No crystals to change out. No tiny dip switches.

Easy installation

Say goodbye to irritating and clumsy clip-on designs. Say hello to a custom, self-centering, press-on accelerator.

No permanent modifications

To go back to your stock computer, just pull the Equalizer off.

Buy it today, get it tomorrow

We have it in stock and it will come to you FedEx Next Day

30-day money-back guarantee

If you are unhappy with ANYTHING, send it back and we will refund your money. NO HASSLES OR RESTOCKING FEE!

1 year warranty

In case your Equalizer breaks we will replace it - FAST!

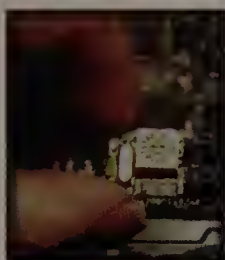
Toll-free technical support

Got a question or problem? Call the 800-number.

Compatible with 6100/60, 6100/66, 7100/66, 7100/80, 8100/100 and Performa 611x
Do not be misled. With thousands sold, accept only the DVC Equalizer™!

Includes

- DVC Equalizer™ accelerator
- Low noise, high output CPU fan
- 16 selectable CPU speeds
- Detailed manual
- Bench testing software disk
- Requires no slots
- Installs in under 5 minutes
- 20-40% speed increase
- No permanent modifications
- Toll-free technical support
- 30-day money-back guarantee
- 1 year warranty



Only \$79.95

Quantity discounts available

Add EVEN MORE POWER

PowerMac L2 Cache	
256K.....	\$125
512K.....	\$259
1024K.....	\$399

DVC Equalizer for 9500/8500

- 16 speed settings up to 168MHz
- Installs easily with no permanent modifications
- Safest and securest fit of any 8500/9500 accelerator

\$79.95 150MHz

40/120 VRAM 2MB Daughter board.....	\$89
7200/7500/8500 VRAM 1MB.....	\$149
Dynamic Server (SIMM) 32MB.....	\$149
Dynamic Server (SIMM) 64MB.....	\$149
Dynamic Server (SIMM) 128MB.....	\$149
Dynamic Server (SIMM) 256MB.....	\$149
Dynamic Server (SIMM) 512MB.....	\$149
Dynamic Server (SIMM) 1GB.....	\$149

800.889.5137
417.889.5113 Phone 417.889.7980 Fax

CIRCLE 436 ON READER SERVICE CARD

PCI WARE

9500/8500/7500/7200

7200/7500/8500

L2 DIMM Cache
256K.....\$CALL
512K.....\$CALL



All orders delivered next day



MEMORY MEMORY

OUR GOAL IS TO BEAT OUR COMPETITORS' PRICES
CALL US LAST AND RECEIVE A SPECIAL DISCOUNT

POWER PC, CENTRIS, QUAD, LCIII, PERFORMA
72PIN (SIMM)

	70ns		60ns
4M/8M	\$136/258	4M/8M	\$140/279
16M/32M	\$465/928	16M/32M	\$510/930
64M	\$2095	64M	\$2190

VRAM 256/512 \$19/34

POWER PC 9500, 7500, 7200 (DIMM)

	70ns		60ns
4M/8/16	\$155/297/545	4M/8/16	\$158/312/595
32M/64	\$1080/2235	32M	\$1110
		128M	\$4710

VRAM 1MB \$89

	520, 520C, 540, 540C		CACHE
4M/8/16	\$172/318/605		PERFORMER/POWER PC
24M/32	\$1029/1160		256K \$135 512K \$289
			7200/7500/8500/9500
4M/8/10/12/14	CALL		256K \$260 512K \$379

ALL DUO'S

4M/8/12	\$169/324/470	14M/20/28	\$555/789/1160
---------	---------------	-----------	----------------

H.B.R. ENTERPRISES

11628 SANTA MONICA BLVD #201, LA. CA 90025

TEL (800)HBR-2021 FAX (310)826-2573

INTERNATIONAL (310)826-3363

E-Mail hbrcomp@ix.netcom.com

7:30 AM 6:00 PM MON-FRI 10:00 AM 3:00 PM SAT

UNIVERSITY, SCHOOL, GOVERNMENT, FORTUNE 500, 100 P.O.s WELCOME

Prices subject to change. Limited availability. Return items subject to approval and restocking fee.

CIRCLE 452 ON READER SERVICE CARD



THE LLB
COMPANY, INC.

To Order:
1-800-848-8967

International: 206-746-0229
Fax: 206-746-5168

• NEW WEB SITE •
HTTP://llb.com

WD0196

MEMORY

30 PIN

1 X 8 X 100NS MEMORY UPGRADE	\$32
1 X 8 X 70NS MEMORY UPGRADE	39
1 X 8 X 80NS MEMORY UPGRADE	36
1 X 9 X 70NS MEMORY UPGRADE	45
2 X 8 X 70NS MEMORY UPGRADE	77
2 X 8 X 80NS MEMORY UPGRADE	75
4 X 8 X 70NS MEMORY UPGRADE	138
4 X 8 X 80NS MEMORY UPGRADE	136
4 X 9 X 70NS MEMORY UPGRADE	159
8 X 8 X 70NS MEMORY UPGRADE	315
16 X 8 X 70NS LOW PROFILE	599
1 X 8 X 70NS FX MEMORY UPGRADE	43
1 X 8 X 80NS FX MEMORY UPGRADE	43
4 X 8 X 70NS FX MEMORY UPGRADE	155
4 X 8 X 80NS FX MEMORY UPGRADE	155
8 X 8 X 80NS FX MEMORY UPGRADE	349
16 X 8 X 80NS FX MEMORY UPGRADE	659
4 X 8 X 70NS II/IX UPGRADE	151
4 X 8 X 80NS II/IX UPGRADE	149
4 X 8 X 100NS II/IX UPGRADE	150

72 PIN

4MB 60NS 1X32 72PIN UPGRADE	\$139
4MB 70NS 1X32 72PIN UPGRADE	135
8MB 70NS 2X32 72PIN UPGRADE	265
8MB 70NS 2X32 72PIN UPGRADE (MAC)	263
8MB 60NS 2X32 72PIN UPGRADE	279
16MB 70NS 4X32 72PIN UPGRADE	535
16MB 60NS 4X32 72PIN UPGRADE	540
32MB 60NS 8X32 72PIN UPGRADE	1057

POWERBOOK MEMORY

PB150 SERIES

PB 150 4/8/14MBRAM	\$169/335/589
--------------------	---------------

PB500 SERIES

PB 500 SERIES 4/8MB RAM	\$169/319
PB 500 SERIES 16/32MB RAM	625/1279

PB5300 SERIES

PB5300 SERIES 4 MB RAM	212
PB5300 SERIES 8 MB RAM	359
PB5300 SERIES 16MB RAM	689
PB5300 SERIES 32MB RAM	1372

PB Duo 210/280 SERIES

PB Duo-4MB / 8MB MEMORY UPGRA	\$169/299
PB Duo-12MB / 14MB MEMORY UPGRA	479/549
PB Duo-20MB / 28MB MEMORY UPGRA	785/1172



ACCESSORIES

VRAM

256K 80NS VIDEO RAM	\$20
512K VIDEO RAM	29

FPU, MATH CO-PROCESSORS

CENTRIS FPU 25MHZ	\$189
CLASSIC MATH COPROCESSOR 16MHZ	59
CLRCISC POWERCACHE ADAPTER	110
FPU 33MHZ DUO/P600	59
FPU COLOR CLASSIC 16MHZ	49
LC MATH COPROCESSOR 16MHZ	49
LC575 33MHZ MATH COPROCESSOR	350
LCIII 25MHZ MATH COPROCESSOR	49

PB BATTERIES

REPLACEMENT BATTERY 140-180C	\$59
SLIMPK EXT BATT PB100-180C	145
AUTOMOBILE PB ADAPTER	62
BATTERY PB140-180	59
MINI A/C ADAPTER FOR DUO	50
MINI A/C ADAPTER FOR POWERBOOK	50
PB 100 EXTERNAL BATTERY CHARGER	115
PB BATTERY CHARGER/CONDITIONER	53
PB100 BATTERY	49
VST Charger 500	159
VST Charger 500 AC or DC Bundle	229
VST Auto Adapter 500	89
ThinPack Complete/ThinPack PLUS	115/229

NEW DIMMS!

4MB 70NS 64BIT	\$185
8MB 70NS 64BIT	289
16MB 70NS 64BIT	552
32MB 70NS 64BIT	1099
64MB 70NS 64BIT	2239

MODEMS

Global Village

Teleport GoldII™	\$112
Teleport Platinum 28.8 V.34	205
PowerPort Duo 2XX Mercury 19.2	329
PowerPort 1XX Platinum 28.8 V.34	339
PowerPort 5XX Mercury for 500	342
PowerPort Platinum PC Card 28.8	349

SUPRA

SUPRA 14.4 S/R FAX	\$205
SUPRA 28.8 PB FAX/MODEM	239
SUPRA 28.8 V.34 S/R Fax Modem	229
SUPRA V.32BIS PB FAX	165
SUPRAEXPRESS 144 PLUS/288 Ext. V.34	99/179

US ROBOTICS

MacFax Sportster® True V.34	\$212
Sportster 14,400 Mac&Fax	119

CD-ROM

Blown Away	\$40	Encarta 95	89
Arc of Doom	39	Photodisc Starter Kit	29
Quantum Access 3 Pak	29	VR Workshop	39
Descent	40	Premier Col. Digital Photos	19
Gadget	47	Adventures with Edison	29
Millie's Math House	38	Wild Cards	29
Eco East Africa	36	Corel Stock Photo Library	725
Safety Monkey	24	Corel Gallery2	69
Your Personal Trainer: SAT	38	Casper Brainsy Book	28
Lion King: An. Storybook	36	X-Men Cartoon Maker	28
Aladdin Activity Center	29	Spider Man Cartoon Maker	28
Anno's Learning Games	33	Flashback	43
Magic Bear's Masterpiece	33	Kids Time Deluxe	27
Mutantoid Math/Word Ching	32	Mario's Game Gallery	27
Haight Ashbury in the 60's	34	Power Pete	27
ReElect JFK	33	Solitaire Deluxe	27
Campaigns, Candidates	29	Dungeon Master II	40
Music Room Perspective	20	Frankenstein	50
Virtual Body	29	Fly Fishing: Great Rivers	30
Mayo Clinic: Health Enc.	29	Sign Lang. for Everyone	30
Dr. Schueler's Pro 4.0	46	Ultimate Game Bundle	27
Dr. Schueler's Self Health	29	CD Caddy	13
Phone Disc Power Finder	148	RUMI CD 4x Drive	295

MEDIA

The Original SyQuest Cartridge

	1-4	5-9	10+
44MB 5.25"	\$42	\$41	\$40
88MB 5.25"	\$48	\$47	\$46
200MB 5.25"	\$76	\$75	\$75
270MB 3.5"	\$59	\$58	\$57
105MB 3.5"	\$55	\$54	\$54

ZIP Cartridge 100MB	\$19
SYQUEST EZ135 CARTRIDGE	19

SCANNERS

VISIONEER PaperPort for Mac	\$365
AGFA	
StudioScan II	\$845
StudioScan IISI	935
MICROTEK	
ScanMakerIII	CALL
EPSON	
1000C Color Scanner	\$799
1200C ProMac	1202
NIKON	
SuperCoolScan External	\$1985
CoolScan	1369
ScanTouch AX-1200	1179

UMAX PowerLook W/Adapter	1999
POLAROID SPRINTSCAN	1555



Polaroid
SprintScan
\$1555

ACCELERATORS

SONNET TECHNOLOGY

25MHZ W/16K & FPU LC	\$95
33 MHZ W/16K & FPU LCII/400	135
33MHZ W/PMMU II	179
40MHZ C610/ W/FPU	235/379
50MHZ W/FPU Q610, C650, Q97, C/Q660	569
33MHZ/128K IICI/SI/X/CX	489
40MHZ/128K IICI/SI/X/CX	665

DAYSTAR

PowerPro 601 80MHz w/RAM Cache	\$1455
PowerPro 601 100MHz w/Cache	1259
Turbo 040 40MHz w/Cache	679
Turbo 040i 33MHz w/Cache No FPU	609
Turbo 601 66MHz IICI/IISI (w/adpt)/IIVX/IIVI/P600	859
Turbo 601 100MHz IICI/IISI (w/adpt)/IIVX/IIVI/P600	1175
Turbo 601 100MHz IISI (w/adpt)/IIVX, IIVI, P600	1175
PowerCard 601 66 MHz/100 MHz	649/955

DIIMO

50MHZ 64K LCIII/450/LCII/P4/IICI/SI	\$375
50MHZ 64K W/FPU	489
128K CACHE IICI	112
128K CACHE IISI W/ADPTR	155
128K CACHE IISI/FPU/ADPTR	206
128K CACHE Q700/900	112
256K CACHE/ 80MHZ UPGRADE	152/241
512K CACHE/ 80MHZ UPGRADE	249/339
80/84 MHZ CLK UPGRA 6/7/100	112
50MHZ 128K Q7/900	779
128K SLOTLESS CACHE LC475	172
128K SLTLS CACHE Q660A/7/9/950	216
ADAPTERS	89



DRIVES

RUMI DRIVES

RUMI 1.4 GIG RXT. / 730MB EXT./INT.	\$1019/309/310
RUMI 230MB MO DRIVE R/W 128MB /W/5 CART	679/832

CD-ROM DRIVES

RUMI CD-ROM DRIVE - MS	\$172
RUMI CD4X DRIVE W/FWB, CLARIS WORKS, GROlier '95	\$295

IONEGA ZIP DRIVES

ZIP DRIVE	\$199
-----------	-------

SYQUEST DRIVES

RUMI 88MB/105MB W/CART	\$375/369
RUMI 200MB/270MB W/ CART	523/499
SYQUEST EZ135 W/CART	\$235

APPLE EXTERNAL

HARD DRIVES

540MB	\$365
850MB	419
1080MB	449
2GIG	925



200MB 270MB
\$499

Electronic orders: 1 omputer e 73423,1272 omputer e 73423

- P.O.'s accepted upon approval
- All major credit cards accepted - No surcharge - when shipped
- Prices subject to change - Not responsible for errors
- We export to most countries in the world
- Orders received before 8:00 pm EST weekdays shipped same day
- Open 6am to 7pm M-E 9am to 4pm Saturdays
- Returns subject to a 15% restocking fee

The LLB Company, Inc. 13228 NE 20th St., Ste. B, Bellevue, WA

Airborne Express
Overnight: \$6 and up



Apple
Supplies



HEWLETT®
PACKARD
Authorized
Reseller

CIRCLE 563 ON READER SERVICE CARD

PERIPHERAL

PERIPHERAL OUTLET, Inc.

800/259-6565

SAVE MONEY!

Peripheral Outlet will buy your old memory at great prices, even if you didn't buy it from us! Call for details.

50 MHz Accelerator \$389

Speed increases of up to 400% with the DiiMOCache 50MHz 68030 Accelerator. The DiiMO outperforms not only DayStar's PowerCache 50MHz but also most of the 68040 25MHz accelerators. The DiiMOCache 50MHz runs on the LC, LCII, LCIII, II, IIX, IICX, IICI, ILVI, IISI, SE/30, and the Performa 600 and Performa 400 series. Call for adapter prices.

DiiMOCache 50MHz Accelerator\$389.00 DiiMOCache 50MHz w/FPU\$449.00

68040 Processor w/FPU \$279

For the Centris and Quadra 605, 610, 650 and 660AV, and the Performa 475/476 and LC 475.
33MHz for Quadra 650 and LC 575\$399.00
40MHz CALL
Heat Sink\$19.00



PERIPHERAL OUTLET, Inc.

327 East 14th, PO Box 2329 • Ada, Oklahoma 74820
405/332-6581 FAX 405/436-2245 AppleLink-PERIPHERAL
HOURS: Monday-Thursday 6AM-7 PM CST, Friday 6AM-6PM

We accept Visa/MC/Amex/Discover, and COD Cashiers check upon approval.
Educational, Government, and Fortune 500 P/Os accepted upon approval.

Due to volatility in the market all prices and availability are subject to change without notice.

Call Us For The Latest Prices On Memory For The New PowerBook 5000-Series Computers

168-pin DIMMs for new Macs

Call for the latest prices on 8, 16, 32, and 64 MB DIMMs

PowerMac Accelerators

Call us for ways to economically increase the speed of any PowerMac by 30-40%! (including the 9500/132)

PowerBook 500-series Memory

4 Megabyte upgrade.....	169.00
8 Megabyte upgrade.....	329.00
16 Megabyte upgrade.....	639.00
24 Megabyte upgrade.....	968.00
32 Megabyte upgrade.....	1269.00

All PowerBook memory upgrades include necessary tools, static protection, and instructions for sale installation.

Duo-series Memory

4/8 Megabyte upgrade.....	169/329
12/14 Megabyte upgrade.....	489/569
20/28 Megabyte upgrade.....	795/1095

Video RAM

1 MB VRAM for 7200/7500/8500.....	109.00
2 MB VRAM for ATI Video Card.....	CALL
256K/512K VRAM 80ns.....	21/35

Cache Cards, Etc.

Cache Cards for 7200/7500/8500.....	CALL
256K/512K/1 MB Cache Cards for PowerMacs.....	CALL
128K Cache Card for Quadras.....	from 125.00
128K Cache Card for LCIII & Performa 450.....	129.00
IIci/IIsi 64K Cache Card.....	125/159
Slot-Free Cache Card for LC 475.....	195.00
Slot-Free Cache for 660AV, 700, 900, 950.....	245.00

PowerBook 100-series Memory

2, 4, 6, 8, and 10 Megabyte Upgrades

Call for Best Prices!

72 pin Memory for the Mac

4 Megabyte	80ns	70ns	60ns
8 Megabyte	Prices Changing —		
16 MB-Non Composite	Call for the		
32 MB-Non Composite	Best Prices!		

Standard 30 pin SIMMs

1, 2, 4, 8, and 16 Megabyte SIMMs

Prices Changing —Call for Best Prices!

68882 Math Coprocessors

68882 25 MHz FPU.....	49.00
68882 33 MHz FPU.....	59.00
68882 50 MHz FPU.....	99.00
25 MHz for Mac LC/LCII/Classic II.....	55.00
20 MHz w/2 slots for Mac IIsi.....	119.00

Newton Upgrade Products

Static RAM Storage Cards

512K/1MB/2MB.....	89/124/235
-------------------	------------

Flash Storage Cards

2MB/4MB.....	99/169
8MB/16MB.....	299/565

Miscellaneous

68040 processors with FPU.....	CALL
LaserWriter 320 2,4,6MB upgrades.....	CALL
LaserWriterPro 810 4MB/8MB upgrades.....	255/419
T.I. MicroLaser 1 MB.....	49.00
Mac Classic 1 MB Board.....	75.00
68851 16MHz PMMU.....	89.00
if requested, MODE 32 software included free w/PMMU	
Mac Portable 3-7 MB Cards.....	CALL

TOLL FREE TECH SUPPORT

Our installation instructions and tech support are the best in the industry!

LIFETIME WARRANTY on all memory products.

Order by 6:30 PM CST for same day shipping.*

Overnight delivery from \$8.00!

*some restrictions apply



CIRCLE 454 ON READER SERVICE CARD



Mac Xtra Discounts

CALL FOR OUR FREE CATALOG!

1-800-553-4230



FAX your order!
206-746-5324

International:
206-746-3803

MEDIA

SyQuest	
EZ135MB SYQUEST CARTRIDGE	\$19.50
EZ135MB SYQUEST CARTRIDGE-10 PACK	\$190
44MB SYQUEST CARTRIDGE	45
88MB SYQUEST CARTRIDGE	45
105MB SYQUEST CARTRIDGE	73
200MB SYQUEST CARTRIDGE	36
470MB SYQUEST CARTRIDGE	36
VERBATIM	
5 1/4" 230 MB OPTICAL	30
RECORDABLE CDROM 74MIN/640MB	8
RECORDABLE CDROM 74MIN/640MB-10 PK	75
VERBATIM 25DD 3 1/2 10PK DISK	6
VERBATIM 4MM/60M DATA CART	7
VERBATIM DATA 4MM DC 295 FT	7
VERBATIM DATA 8MM DC 367 FT	7
VERBATIM DC 2120 120MB QIC80	15
VERBATIM MINI/QIC 120MB/307FT	15
VERBATIM MINI/QIC 40MB/205FT	15
VERBATIM EP-5 HIGH YIELD TONE	59
VERBATIM EP-N TONER CART	85
VERBATIM EP-L TONER CART	53
VE-BAT-1 ANTI-GLARE FILTER 14"	33
IONEGA	
2 1/2" 100 MB CARTRIDGE	19
ZIP 100 MB CARTRIDGE 10 PA	39

TDK Audio Products	
90 Minute Metal Tape	5
100 Minute Super High Bias	25
90 Minute High Bias	49
90 Minute Normal Bias	9
120 Min. High Standard	15
120 Min. Extra High	32
20 Min. Hi-Fi Grade	3.50
20 Min. Super VHS	6.90
10 Min. Extra High VHS	3.99
120 Min. 8 MM High Standard	4.25
120 Min. 8 MM Extra High	4.75
120 Min. Hi-Fi Metal Evaporated	13.9

SONY Batteries	
D2 Pack	2.99
C2 Pack	.99
AA 2 Pack	2.4
120 Minute	.9
120 Minute/4 pack	6.99
120 Min High-Grade/4 Pk	10/\$20
20 Min Hi-Fi Metal Evap/4-Pk	14/\$48
20 Min Hi-Fi Metal Part/4 Pk	8.99/\$3.99

SONY VHS Tapes	
120 Minute	\$3.1
120 Minute 4-Pack	\$11
160 Minute	\$3.50
120/160 Minute Super	8.50/\$10
120/160 Minute Super	8.50/\$1
• Works with Super VHS Player	

SONY BETA Tapes (limited availability!)	
500/750 Meter Lgth	5
750 Meter Lgth High-Grade	4.00
500 Meter Lgth Metal	15
CABLES	
100' 4 PINS HANDSHAKING CABLE	9
MODEM CABLE 8 PLUS/S	5
100' CABLE M50-50 6 CABLE	14
100' M50-M50 18 CABLE	8
100' TELEPHONE	14



MONITORS/VIDEO

MONITORS	
SUPERMATCH 17XL/17T	579
SUPERMATCH 20 PLUS	945
RADIUS PRECISION VIEW 17"	999
PRECISION COLOR PIVOT	059
PRECISIONCOLOR 17" RADIUS	059
INTELLICOLOR 20E	9/479/839
NEC MULTISYNC XV14/15/17	9/1099/196
NEC MULTISYNC XE15/17/21	1149/2379
NEC MULTISYNC XP17/21	
VIDEO	
PRECISIONCOLOR PRO 24X NUBUS	1164
PRECISIONCOLOR PRO 24X NUBUS	809
THUNDER IV CX-1560 RADIUS	2485
THUNDER IV CX-1152 RADIUS	2069
THUNDER IV CX-1600 RADIUS	3075
RADIUS THUNDER 24 GT	449

DRIVES

APPLE EXTERNAL DRIVES	
APPLE 540/850MB	321.4
APPLE 10GB/2.0 GB	14.5
OPTICAL DRIVES	
RUMI 250MB MO DRIVE R/W 128MB	66
RUMI 250MB MO DRIVE W/ 5 CART	839
DAT DRIVES	
RUMI DDS/2 DAT 8.0GB W/RETRO	1132
CD-ROM DRIVES	
RUMI CD-ROM DRIVE - MS	172
RUMI CD4X DRIVE W/FWB, CLARIS WORKS	29
SYQUEST	
SYQUEST 135MB W/CARTRIDGE	2.5
EZ135MB CARTRIDGE	1
ZIP DRIVES	
RUMI 40MB ZIP CARTRIDGE	17/19
RUMI	
RUMI 88MB SYQUEST W/CART	36
RUMI 105MB SYQUEST W/CART	314
RUMI 200MB SYQUEST W/CART	52
RUMI 270MB SYQUEST W/CART	49
RUMI 4.2GB EXT/INT	1305/1232
RUMI 1.4GB V EXTERNAL	1010
RUMI 1080 EXTERNAL	709
RUMI 170MB EXT/INT	259/190
RUMI 2.4GB EXT/INT	1151/1090
RUMI 540MB EXT/INT	262/189
RUMI 540MB EXT/INT	306/239
RUMI 365MB EXT/INT	285/229
RUMI 730MB EXT/INT	371/307
RUMI 140TB 3.5" B W/EXTERNAL	59-52



RUMI 270MB \$499!



ACCELERATORS

DAYSTAR	
PowerPro 601 80MHz w/RAM Cache	\$1441
PowerPro 601 100MHz w/Cache	1231
Turbo 0401 40MHz w/Cache	679
Turbo 0401 33MHz w/Cache No	17
Turbo 601 66MHz for ICL, ISI W/Ad	85
Turbo 601 66MHz IIVX, IIVX P600	17
Turbo 601 100MHz for ICL, ISI W/Ad	17
Turbo 601 100MHz IIVX	17
SONNET TECHNOLOGY	
25MHz W/16K & FPU	17
33MHz W/16K & FPU LCM 100	17
33MHz W/PMMU II	174
NEW LOWER PRICING	
4 MB FPU Q/C610/650	17
10MHz W/FPU 100 Q9/7 T4 60 QV	CAL
2K CACHE IIC	41
10MHz FPU Q/C610/650	17
33MHz FPU LC575/P575	278
33MHz/128K IIC/SI/XX/CX	479
40MHz/128K IIC/SI/XX/CX	5
DIIMO	
50MHz 64K LCM/450, LCM/P4	365
50MHz 64K W/FPU	470
50MHz 64K IIC/SI	5
128K CACHE IIC, Q700/900	190
128K CACHE IIS W/ADPTR	152
128K CACHE IIS/FPU/ADPTR	202
56K CACHE + 80MHz UPGR	49/251
512K CACHE + 80MHz UPGR	45/251
80/84 MHz CLK UPGR 6/7/100	17
10MHz 128K Q7/900	75
128K SLOTLESS CACHE 1475	16
128K SLOTLESS CACHE 1475	16



040/40MHz \$670!

030/50MHz (64K LCM/450) \$365!

NETWORKING

FARALLON	
ETHERWAVE NUBUS DR LC	142
ETHERWAVE AUI TRANSCIVER	102
ETHERWAVE AUI TRANSCIVER	102
ETHERWAVE PRINTER ADAPTER	369
DAYNA	
DAYNAPORT CS-T (10BASE-T)	679
DAYNAPORT CS-T 5 PAK 10BA	75
DAYNAPORT CS-T 5 PAK 10BA	86
DAYNAPORT CS-5 PAK (BNC)	573
DAYNASTAR MINI HUB-5 (5 10BASE-T)	17
DAYNASTAR MINI HUB-8 (8 10BASE-T)	17
DAYNA STAR EMI (BNC/AUI)	14
ASANTE	
10BASE-T + 610E ENET THICK/10	169
10BASE-T + 610 THICK/THIN 10BA	197
10BASE-T + 610 THICK/THIN 10BA	197
MA-5 W/BUILT-IN ETHERNET - THIN	197
MA-5 W/BUILT-IN ETHERNET - THIN	197
MA-5 W/BUILT-IN ETHERNET - THIN	197

As Low As \$32!

30 PIN	
1 X 8 X 70NS MEMORY UPGRADE	37
1 X 8 X 80NS MEMORY UPGRADE	37
1 X 8 X 80NS MEMORY UPGRADE	37
1 X 9 X 70NS MEMORY UPGRADE	37
1 X 8 X 70NS MEMORY UPGRADE	77
2 X 8 X 80NS MEMORY UPGRADE	77
4 X 8 X 70NS MEMORY UPGRADE	137
1 X 8 X 80NS MEMORY UPGRADE	135
4 X 9 X 70NS MEMORY UPGRADE	155
1 X 8 X 80NS UPGRADE	320
16 X 8 X 70NS LOW-PROFILE	85
1 X 8 X 70NS FX MEMORY UPGRADE	38
1 X 8 X 80NS FX MEMORY UPGRADE	8
4 X 8 X 70NS FX MEMORY UPGRADE	154
4 X 8 X 80NS FX MEMORY UPGRADE	152
8 X 8 X 80NS FX MEMORY UPGRADE	319
16 X 8 X 80NS FX MEMORY UPGRADE	653
4 X 8 X 70NS I/IX UPGRADE	148
4 X 8 X 80NS I/IX UPGRADE	140
1 X 8 X 111NS I/IX UPGRADE	138

72 PIN	
1X32 4MB 60NS 72PIN UPGRADE	137
1X32-4MB 70NS 72 PIN UPGRADE	131
2X32-8MB 60NS 72 PIN UPGRADE	9
4X32-16MB 60NS 70NS	6
4X32-16MB NON COMP POWER MAT	537
4X32-16MB 60NS UPGRADE	135
DIMMS	
1MB 70NS 64 BIT	13
8MB 70NS 64 BIT	544
6MB 70NS 64 BIT	1095
2MB 70NS 64 BIT	2195
64M 70NS 64 BIT	
36 BIT	
2 X 16/8MB MEMORY UPGRADE	337
1 X 36 X 70NS	1069
VRAM/CACHE	
16K 70NS VRAM	18
512K V LEO RAM	27
1MB VIDEO RAM POWERMAC/200/7	78500
CACHE 256K DIMM	256
CACHE 512K DIMM	4

FPU, MATH CO-PROCESSORS	
CENTRIS FPU 25MHZ	299
FPU 33MHZ DUO/P600	51
FPU COLOR CLASSIC 16MHZ	48
10 MATH CO-PROCESSOR 16MHZ	49
LC575 33MHZ MATH CO-PROCESSOR	280
10 MATH CO-PROCESSOR	48
POWERBOOK MEMORY	
PB 150 SERIES	
PB 150 4MB RAM	164
PB 150 8MB RAM	328
PB 150 14MB RAM	581
PB500 SERIES	
PB 500 8 MB RAM	311
PB 500 16MB RAM	61
PB 500 32MB RAM	171
PB5300 SERIES	
PB 5300 SERIES 4MB RAM	212
PB 5300 SERIES 8MB RAM	357
PB 5300 SERIES 12MB RAM	543
PB 5300 SERIES 16MB RAM	685
PB 5300 SERIES 32MB RAM	1368
PB 5300 SERIES 48 MB RAM	1806
PB DUO 210/280 SERIES	
PB DUO 4MB/8MB	178
PB DUO 12MB/14MB	475/543
PB DUO 20MB/28MB	777/1161
POWERBOOK BATTERIES	
PB 100 1000 BATTERY	44/1
PB 40-1800 BATTERY	57
CALL US FOR ALL YOUR BATTERY NEEDS!	

MODEMS

GLOBAL VILLAGE	
TELEPORT PLATINUM 28.8 V.34	\$205
POWERPORT 1XX PLATINUM 28.8 V.34	329
POWERPORT PLATINUM CARD 28.8	38
POWERPORT PLATINUM CARD PRO	518
US ROBOTICS	
US ROBOTICS 28.8 V.34	109
US ROBOTICS 14.4 EXT	117
ZOOM	
28.8 2400 BPS MODEM	15
28.8 V.34 FAX MODEM	182
14.4 V.32BIS S/R FAX	125
14.4 V.32BIS W/VOICE	147
SUPRA	
SUPRA 28.8 EXT V.34	98
SUPRA 14.4 EXPRESS	98
SUPRA 28.8 PB FAX/MODEM	303
SUPRA 28.8 V.34 S/R Fax Modem	218
SUPRA V.32BIS - B	161



Supra Express 28.8 Plus \$178!

Overnight Delivery \$7 and up
Prices Subject to change without notice
MAC Xtra 1075 Bellevue Way NE, Suite 114 Bellevue, WA 98004 - Phone (206) 746-3803

UPS Ground \$6 and up
Returns Subject to Approval & Restocking Fee
MasterCard, VISA & Discover, no surcharge
Office Hours: M-F, 7am to 6pm; Sat., 9am to 4pm, PST
WD0196

CIRCLE 54 ON READER SERVICE CARD

WANTED:

Used Memory

TOP \$\$\$\$ PAID

Guaranteed! We'll honestly try to beat ANY price!

256K — 32Mb ■ Any Quantity Welcome

■ Trade-Ins Welcome ■

We Buy Macs ■ New & Used SIMMS Available

DIMMS
Here Now!

(800)80-WE-BUY

MACSolutions (310) 394-0001

1416 WILSHIRE BLVD., SANTA MONICA, CA 90403 FAX: (310)394-7744

CIRCLE 410 ON READER SERVICE CARD

DIMMSAVER/R saves your 72-pin SIMMs for use with the new PowerMacs!

Dual Inline Memory Module (DIMM), a 64-bit, 168-pin module is the new RAM used in the latest line of PowerMacs.

SimmSaver Technology gives you a cost-effective, versatile memory upgrade solution with the *DIMMSAVER/R (Patent Pending). This single, reversible adapter converts two 72-pin SIMMs into one 2M, 4M, 8M, 16M, 32M, 64M, 128M DIMM!

Call today for a limited-time special introductory pricing!



NEW!

1-800-636-7281
Tel: (316) 264-2244 • Fax: (316) 264-4445
http://WWW2.dtc.net/~simmsave
Email: simmsave@dtc.net
1820 E. First St. • Wichita, KS 67214

Simply Inventors of Memory Solutions

CIRCLE 402 ON READER SERVICE CARD

NEW AMERICAN STANDARD

The most literally accurate Bible...
...in the English language

BIBLE MASTER™
For Windows™ & MAC®
Lockman Software

NEW! Ask about our new BibleMaster Bundle for only \$69.95

American Bible Sales
870 S. ANAHEIM BLVD. ANAHEIM, CA 92805
1-800-535-5131

The Standard of Biblical Excellence... **NASB**

CIRCLE 537 ON READER SERVICE CARD

INSIDE MACGAMES

Inside Mac Games is the only magazine solely devoted to Macintosh games.

Each CD-ROM issue features:

- Exclusive sneak previews, reviews
- Screen shots, movies, slide shows
- Shareware games, game demos
- Bug fixes, cheats, walkthroughs
- Delivered 10 times a year on CD
- 30 day money-back guarantee

10 Issues: \$59 - USA • \$79 - International

1-800-339-0636

Tel: 708/486-0636 • Fax: 708/486-0647
3862 Grace Ln • Glenview, IL 60025 • AOL: IMGames

CIRCLE 413 ON READER SERVICE CARD

MEMORY

LOWEST PRICES • BEST QUALITY

LIFETIME GUARANTEE

30 PIN SIMMs
1MB/2MB/4MB/8MB/16MB

72 PIN SIMMs
4MB/8MB/16MB/32MB

168 PIN DIMMs
4MB/8MB/16MB/32MB/64MB

ALL POWER BOOK'S
2MB-36MB

1MB DIMM VIDEO RAM
9500/8500/7500 Series

2MB VIDEO UPGRADE
9500/8500/7500 Series

VIDEO RAM
256K/512K

POWER MAC CACHE
256K/512K/1024K

DIMM CACHE
256K/512K/1024K

MEMORY FOR ALL PRINTERS

FPU & PROCESSOR'S
68040 Processor w/FPU 25MHz /33MHz
68882 FPU 25MHz /33MHz

DMS

Data Memory Systems Inc. 24 Keewadin Drive unit 5
Salem, NH 03079 Tel. 603-898-7750 Fax 603 898 6585

University, Government and Corporate P.O.'s with Approved Credit

1-800-662-7466

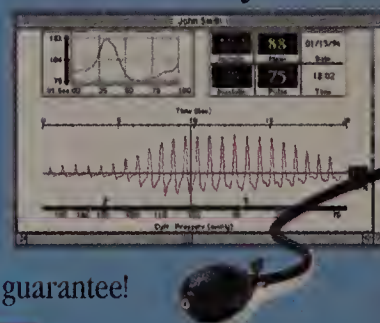
Memory Upgrade Specialists Since 1987

Open Monday-Friday, 9:00a.m.-10:00p.m. EST

CIRCLE 447 ON READER SERVICE CARD

Blood pressure isn't just two numbers anymore...

Monitor your stress, manage your health, and protect your family with DynaPulse® — the only blood pressure system with heartbeat waveform displays! Detect irregular heartbeats! Save, trend and print measurements! Six user capacity! 30-day money-back guarantee!



Pulse Metric®
Incorporated

\$139
list \$179

800-92-PULSE
FAX (619) 546-9470

CIRCLE 493 ON READER SERVICE CARD

MAC GAMES ONLY

Over 60 games in stock

- | | |
|------------------|------|
| 1. DOOM II | \$45 |
| 2. ABSOLUTE ZERO | \$44 |
| 3. ONSLAUGHT | \$39 |
| 4. FULL THROTTLE | \$49 |
| 5. DARK FORCES | \$49 |
| 6. MARATHON | \$39 |
| 7. ZONE WARRIOR | \$39 |
| 8. U-BOAT II | \$46 |

24-HR HOTLINE:

1-800-270-1248

CIRCLE 498 ON READER SERVICE CARD

Bible Book Store On Disk

Full Featured, Fast and Friendly Bible Study software. As the leader in Bible Study software since 1981 we have continued to listen to our customers and provide them with the tools they need. We offer the most comprehensive line of Bible study tools available.

Call for FREE catalog.
Bible Research Systems
2013 Wells Branch Pkwy #304
Austin, TX 78728
800/423-1228
512/251-7541

MUSIC FOR THE MAC

The full scale of Products

MacBEAT

1314 Rufina Circle A4
Santa Fe, NM 87501

- In an age of mail-order nightmares, you can rely on MacBEAT for expert, friendly advice and efficient, reliable service before and after the sale. Our customers enjoy the "Best Tech Support in the business!"
- We offer great pricing on computer-based recording systems, keyboards, sound modules, recording equipment, and all MIDI software, interfaces and accessories.
- Authorized dealer for Digidesign, Opcode, Coda, Mark of the Unicorn, E-mu, Kurzweil, Passport, Panasonic, Ramsa, Roland, Tascam, Steinberg and more!

INFO-LINE: 505-473-3434

Call Now! **SALES 1-800-MAC-BEAT**
Free Catalog! fax: 505-473-4647

CIRCLE 424 ON READER SERVICE CARD

Grow your child's
imagination
on an **emitter**
(em-me-tree)

interactive
furniture
for
children



call for a free brochure: 800.379.0423
email: 76747.3401 @compuserve.com
CIRCLE 429 ON READER SERVICE CARD

ONLINE BIBLE

CD or Disk

FAST, POWERFUL, EASY TO USE

Deluxe CD.....\$90 NIV • NASB • NKJV • NRSV • plus all items on Classic CD

Classic CD.....\$40 KJV w/Strongs + 9 other versions • 20 Study Aids (Grk & Heb., Lexicon, X-Refs., Topics, Dict., Commentaries) • Text and Study Aids in other languages

"...the standard by which all others are judged." — MacHome JOURNAL 8/94

ASK ABOUT OUR OTHER PRODUCTS
FOR THE CHRISTIAN COMMUNITY

800-554-9116

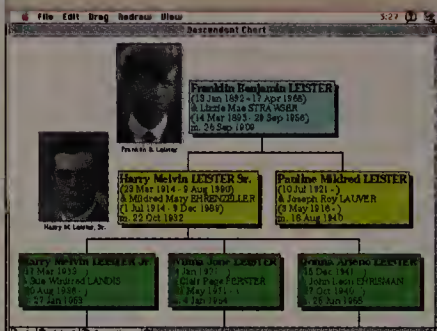
By The Numbers, Inc.



REUNION

the family tree software

Rated best by MacWorld, MacUser,
Computer Life, and Mac Home Journal!



Reunion organizes your family information and images, creates large graphic tree charts — perfect for family gatherings! — prints family group sheets, questionnaires, indexes, calendars, family histories, custom reports, and mailing lists. Reunion also links and displays pictures, shows how you're related to others, calculates life expectancies and the day of the week you were born, records sources, provides custom fields for information unique to your research, imports and exports data, and much more. Free demo version on America Online and CompuServe.

Call MacConnection to order: 1-800-334-4444

For a free brochure
and sample
printouts, contact:



1 1/2

Leister Productions

P.O. Box 289, Mechanicsburg, PA 17055

Phone 717-697-1378 Fax 717-697-4373

CompuServe 74774,1626 America Online LeisterPro

GRAPHIC ASTROLOGY

CALL FOR A FREE CATALOG

1-800-827-2240

TIME CYCLES RESEARCH

375 Willets Avenue Waterford, CT 06385 USA

(860) 444-6641 • Fax (860) 442-0625

E-Mail: TimeCycles@aol.com



LXR-TEST

BEST IN
TESTING

Highest-rated software for every testing environment:
classroom, school, district, governmental,
industrial and certification.

- ✓ Item Banking & Test Production
- ✓ Test Scoring w/Group Comparison
- ✓ Mastery Reporting & Remediation
- ✓ Survey Scoring and Analysis
- ✓ Interactive Testing with Movies
- ✓ Weighted & Multi-Response Grading
- ✓ Accommodates All Question Types
- ✓ Integrated Design (Mac & Windows)

**Logic
eXtension
Resources**

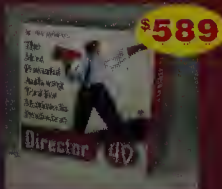
909-980-0046 Fax: 987-8706
7168 Archibald Ave. Suite 240
Rancho Cucamonga, CA 91701

CIRCLE 407 ON READER SERVICE CARD



MinCAD +6

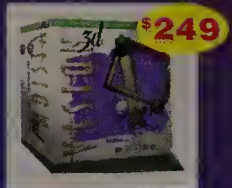
Strata Studio Pro 1.75



Freehand 5.5

Director 4.04

Fractal Painter



Stata Vision 3D

Authorware 3.0

AutoCAD Rel.12

Student/Teacher/School

Full Packages & Latest Versions

* School Purchase Orders Welcomed *

Desktop Publishing Bundle

QuarkXpress 3.31 + any leading photo editing
package + any leading illustration package\$699

'Only' limited to what we carry.

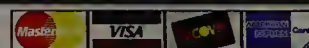
SOFTWARE PLUS

800 377-9943

Save up to 80%

377 Rt. 17 South Suite 116 Hasbrouck Heights,
NJ. 07604 • SPLUSACDEM@AOL.COM,
Info (201) 288-7441 Fax (201) 288-7442

WWW address
<http://tribeca.ios.com/~spai/index.html>



Action! 1.04	\$99	KPT Bryce 1.0	\$84
Allias Sketch 2.0	\$239	KPT Convolver 1.0	\$84
ArchiCAD 4.55	\$495	Live Picture 2.0	\$518
Astound 2.0	\$119	Logomotion 1.0	\$74
Blue Print 5	\$150	Mathematica 2.22	\$159
Canvas 3.5	\$175	Nisus Writer w/Lang. Key	\$199
Coda Finale 3.5	\$249	Norton Utilities 3.1	\$89
Code Warrior Gold 7	\$139	Paint Alchemy 2.0	\$84
Collage 2.0	\$159	Pixar Typestry 2.1	\$135
Conflict Catcher 3	\$59	Soft Windows 2.0	\$228
Designer 3.0	\$175	Strata Media Paint	\$189
Director 4.04 MP	\$950	Stuffit - Deluxe	\$69
Elastic Reality 1.2	\$218	SuperCard 2.0	\$229
Fontographer 4.1	\$159	TextureScape 1.5	\$84
Form-Z 2.6	\$975	Wacom Artz 6x8	\$285
FrameMaker 5.0	\$399		
Fractal Poser 1.0	\$89		
Infini-D 3.0	\$269		
Kai's PowerTools 2.1	\$84		

We Also Carry Adobe
& Microsoft Products.

We will beat any advertised price. Ask about our Catalog.

CIRCLE 538 ON READER SERVICE CARD

Student - Teacher & School Discounts!

LATEST VERSIONS & FULL PACKAGES

FALL SPECIAL

- + Receive a free Mac Acad. Director Video with the purchase of Director.
- + Receive a free Mac Acad. Minicad Video with the purchase of Minicad.
- + Receive Strata Strategies free with the purchase of Strata Studio Pro.

Offers end 12/31/1995

#1
In Education!



QuarkXPress 3.3.1
\$299



Freehand 5.5
\$189



Canvas 5.0
CALL



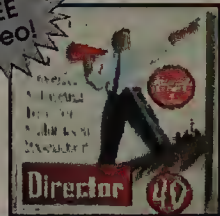
Painter 4.5
\$215



Power Tools 3.0
\$85



Minicad 6
\$319



Director 4.04
\$589



Infini-D 3.1
\$249



Strata Studio Pro 1.7.5
\$495



DrawingSlate II 12x12
\$219

4TH Dimension 3.5.....	\$475
After Dark 3.0.....	\$39
Alias Sketch! 2.0.....	\$249
Alien Skin Texture Shop.....	\$49
American Heritage Dict Dlx..	\$75
Archicad 4.5.5 Student.....	\$495
Artist in Residence.....	\$89
Astound 2.0.....	\$119
Authorware Pro 3.0.....	\$975
Autocad 12.....	\$199
Avid Videoshop 3.0.....	\$199
Azimuth 2.5.....	\$199
Blueprint 5.....	\$149
Cameraman.....	\$49
Chem 3-D Pro 3.2.....	\$149
Chem Draw Pro 3.5.....	\$149
Chem Office Pro 3.0.....	\$299
Claris Draw 1.0.....	\$129
Claris Impact 2.0.....	\$65
Claris Works 4.0.....	\$89
Coda Finale 3.5.....	\$249
Code Warrior 7.....	\$129
Collage 2.0.1.....	\$149
Conflict Catcher III 1.0.....	\$59
Cricket Draw III 2.0.1.....	\$79
Cricket Graph III 1.5.3.....	\$79
Datadesk 4.2.....	\$329
Debabelizer Toolbox 1.6.5....	\$219
Delrina Fax Pro 1.5.1.....	\$49
Deltagraph Pro 3.5.....	\$95
Design Workshop 1.2.....	\$249
Digital Chisel 2.0.....	\$99
Director Multimedia Studio...	\$1175
DrawTools 1.0.....	\$79
DrawingSlate II 6x9.....	\$209
Elastic Reality 1.2.....	\$149
Encore 4.0.....	\$249
Extreme 3-D.....	CALL
Fast Track Schedule 4.0.....	\$139
Filemaker Pro 2.1.....	\$99
Final Draft 3.0.....	\$125
Fontographer 4.1.....	\$169
Form Z 2.7.5.....	CALL
Fractal Dabblor 2.0.....	\$49

Framemaker 5.0.....	\$399
German Power Translator.....	\$99
Graphic Design Studio.....	\$649
Hayes Accura 144/fax 144....	\$119
IdeaFisher Pro 6.0.....	\$75
In-Control 3.0.....	\$55
Inspiration 4.1.....	\$89
Jag II.....	\$65
JMP 3.1.....	\$329
KPT Bryce 1.0.....	\$85
KPT Convolver 1.0.....	\$85
KPT Power Photos Vol 1.....	\$85
KPT Vector Effects 1.0.....	\$85
Live Picture 2.0.....	\$519
Logitech Mouseman.....	\$69
Logomotion 1.5.....	\$75
Lotus 1-2-3 1.1.....	\$99
M.Y.O.B. 6.0.....	\$49
M.Y.O.B. 6.0 With Payroll....	\$90
MacAcad Tutorial Videos....	\$35
Mac Draft 4.1.....	\$199
Mac Project Pro 1.5.....	\$179
MacLink Plus Transl Pro....	\$99
Maple.....	\$449
Master Trax Pro 6.0.....	\$79
Mathcad 3.1.....	\$69
Mathematica 2.2.2 Student..	\$149
Mathematica Enhanced.....	\$699
Minitab Release 10XTRA....	\$199
M Power 2.5.....	\$149
Nisus Writer 4.1.....	\$139
Nisus Writer 4.1 W/LangKey	\$199
Now Bundle 3.5.....	\$69
Now Utilities 5.0.1.....	\$59
Object Master 2.5.....	\$99
Okidata OL410E/PS Printer..	\$765
OSC Deck II 2.2.....	\$199
OmniPage Direct 2.0.....	\$65
OmniPage Pro 5.0 Bundle..	\$209
PageTools 1.0.....	\$79
Paint Alchemy 2.0.....	\$89
Passport Alchemy 3.0.....	\$279
Pixar Showplace 2.2.....	\$149
Pixar Typestry 2.1.1.....	\$135

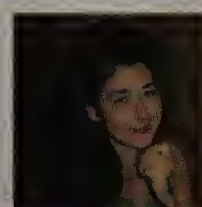
Poser 1.0.....	\$99
Powerport Platinum Pro.....	\$469
ProMotion 1.0.2.....	\$95
Quickeys 3.01.....	\$85
QX-Tools 1.0.....	\$79
Radius 8100/110MHZ 730 MB	\$2979
Radius Multiview 21" Color..	\$1799
Radius PrecisionView 17.....	\$899
Radius Spigot Pro AV.....	\$1249
Ram Doubler 1.5.2.....	\$55
Ray Dream Designer 4.0.....	CALL
Ray Dream Studio	\$219
SigmaPlot 4.1.....	\$199
SmallTalk V 2.0.....	\$99
Sound Edit 16.....	\$189
Spanish Professional Transl..	\$349
Speed Doubler 1.0.....	\$55
Story Board Artist 1.5.....	\$229
Strata Media Paint 1.0.....	\$249
Strata Vision 3-D 4.0.....	\$249
Supercard 2.5.....	\$229
Supercard Multimedia Bndl..	\$319
Soft PC 3.0.....	\$89
SoftWindows 2.0.....	\$249
Teleport Platinum 28.8.....	\$209
Terrazzo 1.5.....	\$89
Texturescape 1.5.....	\$85
Three X Five 2.0.....	\$59
Transjammer Vol 1.....	\$59
TurboCad 3-D.....	\$179
Up-Front 3-D 2.0.....	\$99
Vellum 3-D 2.7.....	\$595
Video Director 2.0.....	\$89
Video Fusion 1.6.1.....	\$275
Virex 5.6.....	\$60
VistaPro 3.0.....	\$75
Wacom Art Pad II 4x5.....	\$139
Wacom Art Pad II w/Dabblor	\$159
Wacom Art Z II 6x8.....	\$285
Wacom Art Z II 12x12.....	\$425
Walkthrough Pro 2.5.....	\$229
Word Perfect 3.5.....	CALL
XRES 1.2.1.....	\$269
Zoom/Atlantis Render Bndl	\$595

NEW CARRYING
HARDWARE BY THE
FOLLOWING....

*Calcomp - Drawing Tablets
*Wacom - Drawing Tablets
*Global Village - Modems
*Logitech - Scanners & Mice
*Hayes - Modems

*US Robotics - Modems
*Supra - Modems
*Radius - Monitors & Computers
*Okidata - Printers
*Sony - Monitors

- **SAME DAY SHIPPING ON MOST ITEMS.
- **ADOBE, SYMANTEC & MICROSOFT PRODUCTS AVAILABLE TO QUALIFIED STUDENTS, TEACHERS & SCHOOLS.
- **SCHOOL PURCHASE ORDERS WELCOME.
- **NO SURCHARGE ON CREDIT CARDS.
- **IBM & MAC PRODUCTS AVAILABLE.



CALL FOR
FREE CATALOG!!
(800) 289-3275
INCLUDES COMPLETE PRICE
LIST & FREE PRODUCT INF.

WE WILL BEAT ANY ADVERTISED PRICE!!

1-800-289-3275

The
SOFTWARE
Source



2517 Hwy. 35, Bldg. L
Manasquan, NJ 08736
(908) 528-0030
FAX (908) 528-9378
E-MAIL: SFTSWS@AOL.COM

CIRCLE 423 ON READER SERVICE CARD

United CD ROM

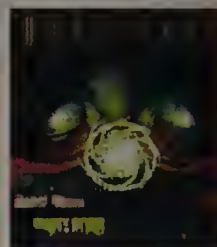
ORDER AS LATE AS MIDNIGHT! SAME DAY SHIPPING**
Hours M-F 8 am - 12 midnight • Sat. 8 am - 5 pm Sun. 12 Noon - 5 pm (All times listed are CST)

1-800-864-8334

TOP TITLES



Alchemist
by Enteractive Inc.
Ask the Alchemist, your answer appears immediately emerging from animations and melodies. science.
46238 **\$30**



Marathon 2
by Bungie Software
The adventure continues in the sequel to the greatest Mac adventure game of all time.
45546 **\$41**



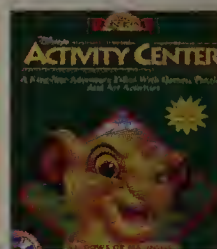
Hell: A Cyberpunk Thriller
by Take Two
The government controls the gates of hell and has declared you a fugitive.
45467 **\$44**



Doom II
by GTE
Hell on Earth. Return to Earth City and take on even more deadlier nasties. 30 new levels.
36140 **\$41**



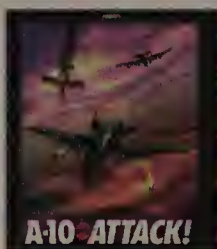
The 11th Hour
by Virgin
A feature length, powerfully graphic video through the 11th Hour. Sequel to the 7th Guest.
34954 **\$50**



Lion King Activity Center
by Disney Interactive
A new interactive way to let kids learn with Simba and his friends.
43705 **\$32**



Street Atlas
by DelmoreMapping
A comprehensive road map of the country. Access streets, railroads, mountains, rivers, lakes and streams.
32443 **\$66**



A-10 Attack
by Parsoft
Modern day warfare in the worlds toughest, ugliest, airborne assault vehicle...The A-10 Warthog
45239 **\$44**



AD & D Collectors Edition
by Wizard Work
Advanced versions including, Pool of Radiance, and many more.
40900 **\$33**



Monty Python: Complete Waste of Time
by 7th Level
Includes the Game, an Interactive Show and more.
46067 **\$45**



Links 386 Pro
by Access
Unrivaled in recreating the true golfing experience. Features Harbour Town Golf Links
39733 **\$27**



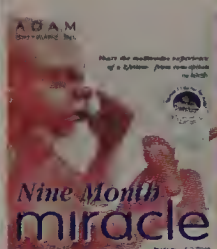
Empire II
by Sony Entertainment
Eastern metaphysics unfold the incredible journey through nine reincarnations of the hero Rin.
44752 **\$33**



Absolute Zero
by Spectrum Holobyte
Alien beings have burst from the core of your ice planet and threaten to destroy your home.
36572 **\$38**



F/A 18 Hornet
by Graphic Simulation
It's the ride of your life. Fly against the newest technology and the best trained pilots the enemy can produce.
43200 **\$43**



Nine Month Miracle
by Adam Software
An interactive journey into the dramatic beginnings of life. Real life video and dramatic photography
42274 **\$32**

MW5

All Major Credit Cards



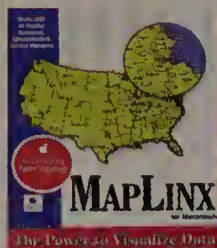
Accepted

BBS 1-217-352-9654
Contact us ON-LINE on CompuServe: 76043,1605
on America On-Line, Member Name: UNITEDCD
UNITED CD ROM INFO
via Fax back at 1-217-352-8123
*While supplies last.

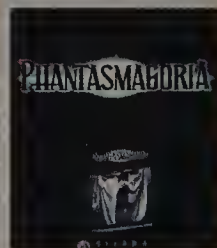
FAX ORDERS 1-217-352-9749
International Orders CALL 1-217-352-8737
Orders received as late as 11 p.m. (CST) for 2nd day out. Call for other shipping rates. Items availability, special offers and prices may vary according to format and are subject to change without notice.



Star Trek Omnimedia
by Davidson & Assoc.
Access thousands of color photos and illustrations taken from Star Trek episodes.
41945 **\$43**



MapLink
by Maplink
The perfect tool for anyone analyzing sales territories, market concentrations, new site locations and other data.
44271 **\$85**



Phantasmagoria
by Sierra Online
The most advanced multimedia suspense thriller ever. Digital effects and computer rendered worlds.
35733 **\$50**



Dungeon Master II
by Interplay
A gaming experience that will challenge you like nothing before. Amazing creatures and character.
40435 **\$35**



Star Rangers
by Interactive Magic
Your primary responsibilities are upholding law and protecting the star base.
43248 **\$43**

The Largest Selection

1-800-UNITED4

Over 800 Adult Titles at
800-CDADULT (1-800-232-3858)
Must be 21 to order adult titles.

CIRCLE 487 ON READER SERVICE CARD

**Digital Taps On
CD-ROM**

- **U.S. Topographical**
Full Color Shaded Relief
Atlas \$198
- **U.S. Interactive**
Create digital maps using
a highly detailed
topographic base \$99

Circle 419 on Reader Service Card

**FREE SHAREWARE
CATALOG**

Software
as low as
\$2.99

- Education ■ Games ■ Graphics
- Productivity ■ Utilities ■ Fonts

EDUCORP® 1-800-843-9497
Info: 619-536-9999 • FAX 619-536-2345
7434 Trade St • San Diego CA 92121

Circle 418 on Reader Service Card

**FREE CHILDREN'S SOFTWARE
CATALOG**

Includes McGee®
NO WORDS
Software series!
1-800-421-4157

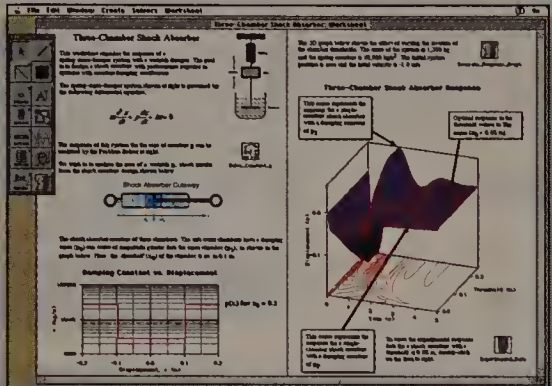
**LAWRENCE
PRODUCTIONS**

Circle 438 on Reader Service Card

From the makers of LabVIEW®

HiQ

Interactive Math for Macintosh and Power Macintosh



Accelerated for
Power Macintosh

Interactively analyze and document in the HiQ environment – much more than a command-line interface.

Solve Math Problems Interactively

- Data Fitting
- Data Visualization
- Eigenvalue
- Expression Evaluation
- Linear Algebra
- Numerical Integration
- Nonlinear Systems
- Optimization
- Ordinary Differential Equations
- Probability and Statistics
- Root Solving
- Signal Processing and much more ...

Call today for a
FREE HiQ Demo
(800) 433-3488
(Includes Interactive Data Fitter)

**NATIONAL
INSTRUMENTS®**
The Software is the Instrument®

6504 Bridge Point Parkway • Austin, TX 78730-5039 USA • Tel: (512) 794-0100 • Fax: (512) 794-8411
E-mail: info@natinst.com • WWW: http://www.natinst.com
© Copyright 1995 National Instruments Corporation. All rights reserved. Product and company names listed are trademarks or trade names of their respective companies.

Circle 520 on Reader Service Card

**Practica
Musica™**
VERSION 3

Your personal music tutor now includes rhythm tapping, chord progressions, and many other exciting new features. More than ever the most complete music training package available for both beginners and advanced students. \$140

NEW

ARS NOVA • (206) 828-2711 • (800) 445-4866
FAX (206) 889-0359 or (206) 828-2132

Songworks™

Not only prints your song, but helps you write it!
Suggests tune and harmony ideas, plays, prints melody, chord symbols, lyrics—with or without MIDI. \$125

Circle 484 on Reader Service Card

<http://www.nobledesign.com>

Large format acrylic on canvas paintings from your digital art files. Complete info & photos on the net. Drop by anytime.

Circle 453 on Reader Service Card

**Super Anatomy
4 & 5 Collections
Just Released!**

**ON THE LOOKOUT
FOR MEDICAL CLIP ART?**

Full color electronic graphics depicting the human body and all its systems in exquisite detail. Compatible with any software application.

- Macintosh or Windows
- CDs or 3 1/2" Disks

**RATED 5 OUT OF 5
Medical Software Review**

For A FREE Image Catalog Call:
800-LIFEART

TECHPOOL™
Cleveland, OH

(800) 543-3278
(216) 291-1922
Fax (216) 382-1915

Circle 415 on Reader Service Card

Mac 3D Has Never Been So Easy!

Interior Design Collection
includes:
Furniture, Household, Cabinets, Appliances, Bath & Kitchen Fixtures, Lighting, Furnished Scenes, Stairs, Doors, Windows, Homes...
Over 500 in All!
All objects are fully animatable & textured!

REPLICA Technology (716) 337-0621
4650 Langford Rd. • North Collins • NY 14111

Circle 499 on Reader Service Card

POSTERS MURALS BILLBOARDS BACKDROPS TRADESHOW EXHIBITS BANNERS

**THE ONLY FAST, EASY,
ECONOMICAL WAY TO CREATE
LARGE-FORMAT PRINT JOBS.**

- Layouts up to 10,000 square feet
- Imports EPS, TIFF, Scitex CT artwork
- Drives any PostScript printer
- Fixed, custom and automatic tile sizes
- Variable panels, margins, gaps, overlaps, bleeds
- Hundreds of professional large-format production tools
- Supported by a network of service bureaus nationwide

For info call: (617) 338-2222 or fax: (617) 338-2223
Now at MacWarehouse! 1-800-255-6227

©1995 S. H. Pierce & Co.
Ste. 323 Bldg. 600, One Kendall Sq., Cambridge, MA 02139

PosterWorks

Circle 483 on Reader Service Card

GRAPHICS NETWORKING & COMMUNICATIONS SERVICES & SUPPLIES



-DIGITAL COLOR PRINTS-

BIG, BEAUTIFUL AND IMPRESSIVE.

Merge text, graphics and photos from your disk or original art. Produce posters, billboards, back-lits, convention displays and P.O.P. displays from Mac or PC from 8-1/2" x 11" up to 52" x 30" in one piece.

T-SQUARE EXPRESS

998 W. Flagler St.
Miami, FL 33130
1-800-432-3360
B.B.S. (305) 545-8180

ALSO AVAILABLE ON CD-ROM

AdArt

ELECTRONIC CLIP ART FOR ADVERTISING

PEPSI GE R REALTOR

RECYCLED ART • WEDDING
REAL ESTATE ART • ASTROLOGY
FLAGS OF THE WORLD • MASCOTS
CARS & LIGHT TRUCKS • ANIMALS
LOGOS & TRADEMARKS, 1 - 12
INT'L SYMBOLS & ICONS, 1 & 2 • WOMEN
BUSINESS SYMBOLS • MEDICAL SYMBOLS
SAFETY & PACKAGING • FRATERNAL SYMBOLS
ACCENTS & ATTENTION GETTERS • TRANSPORTATION
ALSO: SPECIAL EDITION VINYL CUTTERS PACKAGES

800 255-0562

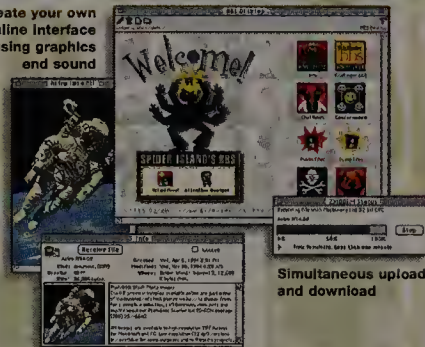
FAX 802 878-1768 • INFO: 802-879-1164

Innovation Advertising & Design
41 Mansfield Ave • Essex Jct., VT 05452

CIRCLE 421 ON READER SERVICE CARD

Start your own custom Online Service!

Create your own online interface using graphics and sound



Simultaneous upload and download

Online viewers for pictures, thumbnails and descriptions

- Internet E-mail
- Multi-user Chat
- Fastest file transfers available
- Mac and Windows client software
- Supports Modems, ISDN and TCP-IP
- Unlimited user license

Call 714 453.8095 for a FREE Demo Disk and more information.

TeleFinder bbs

Spider Island Software
One Venture, Ste. 230, Irvine, Ca 92718 USA
BBS: 714.453.8190 Fax: 714.453.8044
info@spiderisland.com
http://www.spiderisland.com

CIRCLE 489 ON READER SERVICE CARD

LS FORTRAN

- ANSI standard FORTRAN 77
- VAX & Cray extensions
- Extensive code optimizations
- Background execution
- User-friendly Mac interface
- Native PowerMac & 68K

800-252-6479

Language Systems Corporation
(703) 478-0181 • Fax: (703) 689-9593
AOL/AppleLink/eWorld: LANGSYS
Web: http://www.langsys.com/langsys

CIRCLE 441 ON READER SERVICE CARD

Digital Output Have You Called Us?

Slides, Overheads, Canon Digital Lasers, 4x5 Imaging, Big Color Posters, Dye-Sub Color Prints...

IMAGERS

800-672-7032 or 404-351-5800
1575 Northside Dr. Suite 490 Atlanta 30318
www.imagers.com

CIRCLE 502 ON READER SERVICE CARD

MAC REPAIR & UPGRADE

800-622-7977

24 HOUR SERVICE TURNAROUND
LONGER WARRANTY
FREE DIAGNOSTICS
COMPETITIVE PRICE

- Specialize in component repairs
- Power Mac
- Power Book
- Logic boards
- Advance Exchanges



Phone: 408-720-9899
Fax: 408-720-9459
720 East Evelyn Ave.
Sunnyvale, CA 94086
http://www.dltservice.com

DT & T MACINTOSH SERVICES, INC.

CIRCLE 504 ON READER SERVICE CARD

SCANNING SERVICES



Pro/\$8 • 35mm Master/\$.90

IMAGERS

Overnight Digital Services

800-672-7032 or 404-351-5800
1575 Northside Dr. Suite 490 Atlanta 30318
www.imagers.com

CIRCLE 501 ON READER SERVICE CARD

THE DAWN OF A NEW ERA IN COMPUTER IMAGING!

50% OFF

ALL
DISPLAYMAKER™
INKJET PRINTS

sizes up to 36" x any length!

offer ends 12/31/95

- > MAC/PC FILES
- > IRIS PRINTS
- > LINOTRONIC OUTPUT
- > HIGH RES SCITEX / LEAF SCANS
- > MOUNTING / LAMINATING
- > 4/C SEPARATIONS
- > MATCH PRINTS
- > FIERY PRINTS



AMEX / VISA / MC ACCEPTED, INTERNATIONAL SHIPPING AVAILABLE.

MET PHOTO INC • 1500 BROADWAY N.Y., N.Y. 10036
TEL-212-869-6960 • FAX-212-869-5727 • MODEM 212-869-6963

CIRCLE 465 ON READER SERVICE CARD

NO DIAGNOSTIC FEE

GUARANTEED RECOVERY

FASTEST TURNAROUND

DATA RECOVERY

SINCE 1989
MAC SPECIALIST

- REMOVABLE MEDIA • TAPE
- HARD DRIVE AND FLOPPY DISKETTE

1-800-469-2549

MICRO COM

19011 VENTURA BOULEVARD TARZANA CA 91356
TEL 818-881-7417 FAX 818-881-8015

CIRCLE 422 ON READER SERVICE CARD

DIGITAL OFFSET PRINTING

Special Offer!

1,000 - 8 1/2" x 11", 4 color process flyers on 80 lb. gloss
text #1 sheet directly from your artwork supplied on disk
only \$499.00

- Standard 5-day turnaround; same-day available
- True offset quality, Heidelberg digital presses
- 500 to 10,000 pieces our specialty

Qcolor Direct

ORDER TODAY!
800-838-9877

CIRCLE 449 ON READER SERVICE CARD

Detailed Networks in Minutes with NetDraw® 2.0!

With over 330 professionally drawn images, NetDraw® 2.0 gives users immediate access to clip art symbols for LANs, WANs, computing, PCs, telephony and patching and cabling. Also included are flow charting symbols as well as mapping graphics to depict your networks geographically. Available now for just \$129.95, NetDraw® 2.0's complete clip art library is easily imported into most Macintosh applications. **Call 800-643-4668 to order your copy today!**

NetDraw

Clip Art for Building Networks®

CIRCLE 461 ON READER SERVICE CARD

Data Recovery and Assistance: 800 440-1904



DriveSavers' advanced, proprietary techniques and amazing success stories have been featured on *CNN* and *Headline News*, and appeared in *The Los Angeles Times*, *MacUser*, and *Nation's Business* (to name just a few). That's because, since 1985, businesses and individuals have trusted us to recover data others said was lost forever. Just give us a call. We can save it!

400 BEL MARIN KEYS BL., NOVATO, CA 94949, PHONE: 415-883-4232, FAX: 415-883-0780

CIRCLE 510 ON READER SERVICE CARD

MAC REPAIR

Mac Shop Northwest

- Apple™ Certified Technicians
- One-Day Service Turnaround*
- Hard Disk Repair & Data Recovery
- Up to 75% below Dealer Rates
- Component-Level Repairs
- Expert Advice and Prices by Phone
- Power Supplies & Logic Boards
- Lifetime Repair Warranty*

Tel: 1-503-642-3456

*on many repairs. Visa/MC/AX. Fast overnight shipping available. We use genuine Apple™ parts.



1-800-MAC-SHOP

CIRCLE 515 ON READER SERVICE CARD

SOFTWARE

Insures Your Computer

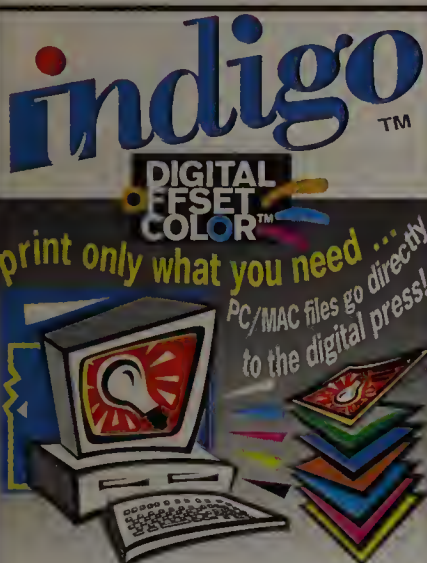


The ComputerownersSM Policy insures you against theft, fire, accidental damage, lightning even power surge! Replace or repair for \$49 a year. Available in the U.S. & Ontario.

1-800-800-1492

SAFEWARE, The Insurance Agency Inc.
2929 N. High St., PO Box 02211
Columbus, OH 43202

CIRCLE 426 ON READER SERVICE CARD



print only what you need...
PC/MAC files go directly to the digital press!

Short-Run 4-Color Offset Printing
Brochures, Press Kits, Product Literature,
Business Cards, Newsletters, Phone Cards...

- FTP or modem your files
- 24-48 hour on-demand service
- Expert Customer Support Team

Call for info/samples/quotes/nw!

IMAGERS[®]

Overnight Services

800-672-7032 or 404-351-5800

1575 Northside Dr. Suite 490 Atlanta 30318

www.imagers.com

CIRCLE 456 ON READER SERVICE CARD

SLIDES

From PC & Mac files \$3.75

4x5 chromes/negs \$30

Dye sub print/overhead \$18

Hi Res Scanning \$10

Call for special pricing on Quantity
Duplication of Slides & Overheads

Show & Tell 39 W38th St., NY, NY 10018

212 840 2912 • 212 840 7953 (fax)

CIRCLE 550 ON READER SERVICE CARD

NEXTWAVE SERVICE BUREAU

35mm SLIDES & DUPES

4X5's & SCANS

PC & MAC

OVERHEADS

COLOR PRINTS:

Fiery, Iris, Cactus

COMPETITIVE PRICING

in new york 212/989 2727

elsewhere 800/445 9002

bbs 212/989 3290

AMERICAN EXPRESS • VISA • MASTERCARD • DISCOVER

CIRCLE 488 ON READER SERVICE CARD

Since 1989, We've Put More Lives Back Together Than Oprah, Donahue, and Dr. Ruth Combined.

They aren't just documents and files. They're your life. And that's the way we treat them when you come to us for data recovery. Since 1989, we've restored information that has helped McDonnell Douglas fly high high, kept Mobil Oil in the black, and allowed Johns Hopkins University to stay on the cutting edge of medicine. We can do the same for you, too. Quickly, efficiently, and painlessly. So, the next time you experience data loss, give us a call. We'll help you make the most of a bad situation.

800-743-0594

TOTAL RECALL[®]

THE DATA RECOVERY COMPANYSM

www://usa.net/totrecal Phone 719-380-1616 Fax 719-380-7022

CIRCLE 458 ON READER SERVICE CARD

ONTRACK DATA RECOVERY

The World Leader
in Professional
Data Recovery Services!

- Mac Specialists
- Any Media
- All Operating Systems
- Emergency Services

Mention this
ad for a FREE
diagnostic
evaluation!

Ontrack[®]
DATA RECOVERY

1-800-872-2599

West Coast Federal Customers

1-800-752-7557 • 1-800-650-2410

See us at MacWorld! Booth #2149

CIRCLE 459 ON READER SERVICE CARD

Data Recovery in hours.

- Over 10 years of experience with clients worldwide including Apple, NASA, HP, and FedEx.
- We've recovered more than half-a-million megabytes of Mac Data alone.
- You only pay when there's a recovery.
- Express One-Day Service is available.
- Call 24 hours a day.

415-495-5558 • FAX 415-495-5553 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103



LAZARUS

DATA RECOVERY

Working at the speed of business.

800-341-DATA

CIRCLE 427 ON READER SERVICE CARD

We can scan your 35MM
slides & negs onto Photo CD
24 Hr Turnaround

as low as
60¢
an image

1-800 WRITE

CD

800-974-8323

CIRCLE 406 ON READER SERVICE CARD

INTRODUCING

the latest Macworld buying tool, providing a new resource in finding the products and services you're looking for.



Turn to Macworld Directory in every issue of Macworld to make your buying process a snap.

FOR ADVERTISING INFORMATION call Gabrielle Green at 415.267.4521, or email to gabrielle_green@macworld.com

CONFERENCES/TRADESHOWS

SOFTEXPO '96/FOR DEVELOPERS

At Santa Clara, CA, Jan. 30, 31, Feb. 1, 1996. The Software Industry under one roof. Three days of conference & exhibits. If you develop and publish software, call 1-800-803-9488 for an information kit. Sponsored by Software Developer and Publisher Magazine.

WEBCOM

10555 E. Dartmouth, Suite 330, Aurora, CO 80014
303/745-5711 <http://www.infowebcom.com/nsoftexpo>

CIRCLE 569 ON READER SERVICE CARD

DEVELOPER ASSOCIATIONS

Developers' Open Door™ Program

This is a comprehensive support association for all developers of Strata-based third-party extensions, libraries, and multimedia titles. Join the Developers' Association to get 40% off Strata software (U.S. only) and a CD-ROM filled with developer information. ORDER NOW!

STRATA

2 West. St. George Blvd, St. George, UT 84770
1-800-STRATA3D, opendoor@strata3d.com

CIRCLE 570 ON READER SERVICE CARD

DIGITAL IMAGING & PHOTOGRAPHY

QuickTake & Digital Camera Accessories

- CloseFlash: Even lighting as close as 2" (QuickTake, DC40).
- CloseTake: Photos from 2" to 4" (QuickTake).
- QuickPan: QuickTime VR Pan Head (QuickTake, 35mm, DC 40)
- WideTake: Doubles the camera's field of view (QuickTake).

KAIDAN

218 Anvil Dr. #110 Feasterville, PA 19053, Tel 215-364-1778
Fax 215-322-4186 info@kaidan.com <http://www.kaidan.com>

CIRCLE 571 ON READER SERVICE CARD

DRIVE SALES & REPAIRS

FLOPPY DRIVE REPAIR & SALES

Mac 3.5" 400k, 800k, & 1.44 MEG \$40.00
Advanced Exchange \$50.00 to \$85.00
New & Refurbished Drives CALL
Price include most parts, cleaning & alignment. 1yr warranty on repair, 2yrs on new drives.

UPTIME COMPUTER SUPPORT SERVICES

Valencia, California
805-254-3384 Fax 805-254-1950

CIRCLE 572 ON READER SERVICE CARD

GENEALOGY SOFTWARE

Family Heritage File™ 4.0

Most powerful and easy genealogy program. Rated "BEST" by Macworld. Designed by genealogy professionals • Graphic Pedigree, Descendants, Families, Individuals, Marriages, Surnames • Unlimited Info/Individual • Export • Gedcom • Jewish/LDS features. \$149 + \$5 s/h. Demo \$7. Free Lit. Pak.

STAR-COM MICROSYSTEMS

Order Direct • Visa/MC OK • 801-225-1480
Windsor Park E., 25 W. 1480 N., Orem, UT 84057

CIRCLE 573 ON READER SERVICE CARD

INTERACTIVE/WEB DESIGN

HANK ANNOUNCES CANDIDACY!

Two Guys Named Hank is a multimedia company which designs and creates interactive and non-interactive conceptual productions using music, photography, video, and 2D/3D animation on the desktop for the purpose of dynamic promotion, presentation, and education.

TWO GUYS NAMED HANK

Brooklyn, NY [www: http://www.twohanks.com](http://www.twohanks.com)
phone: 718.398.2093 e-mail: info@twohanks.com

CIRCLE 574 ON READER SERVICE CARD

MANUFACTURING SOFTWARE

The Qube Controller™

Complete GUI-based system runs x-platform on Macintosh® & Windows™. Includes Inventory, Multi-Level BOMs, MRP II, CRP, Job Cost, Lot, Batch & Serial #s, and much more! Complete accounting modules or interfaces w/ Great Plains®.

QUBE CONNECTIONS, INC.

One Fayette Park, Syracuse, NY 13202-2148
Tel (315) 476-2075 • Fax 476-3138 • qcsales@aol.com

CIRCLE 575 ON READER SERVICE CARD

MEDICAL SOFTWARE

ELECTRONIC MEDICAL RECORDS

You ARE ready for a computerized medical chart. Care4th® Pro will revolutionize your practice. Doctor designed, astoundingly powerful, yet it feels like a chart. Hundreds of doctors in 46 states already know this. Under \$2800, Mac/PowerMac.

MED4TH SYSTEMS, LTD.

1165 W. Green Tree Rd., Milwaukee, WI 53217
(414) 351-1988 / (414) 351-1954 Fax

MOBILE COMPUTING

Solar Power For Portable Computers

Recharge or run your PowerBook, Newton or portable PC with a revolutionary solar charger - the KIS Solar System is durable lightweight and will run or recharge most portable computers. Built for the heartiest road warrior. Plug into the Sun! Visit our Web site at: [HTTP/WildWestWeb.com](http://WildWestWeb.com)

KEEP IT SIMPLE SYSTEMS

(800) 327-6882 ext 21 Fax: (406) 449-8946 Kiss@initco.net

CIRCLE 576 ON READER SERVICE CARD

POWERBOOK/NEWTON ACCESSORIES

PowerBook & Newton Screen Cleaner!

Don't make an expensive mistake using the wrong screen cleaner—use Klear Screen! Damaged, active-matrix LCD PowerBook displays, can cost over \$2,000 to replace! Klear Screen is the only display cleaner recommended exclusively by Apple Computer & BMUG for the PowerBook & Newton.

KLEAR SCREEN DIV./ MERIDREW ENTPSE.

Order Direct - Credit Cards OK - 1-800-505-5327
P.O.Box 113, Danville, CA 94526 Fax 510-838-8773

CIRCLE 577 ON READER SERVICE CARD

PROFESSIONAL TRAINING

Rent MacAcademy Videos by Mail

Videos are the easy way to learn! All major Mac programs available: over 100 different titles, each approximately 2 hours long. A two week rental including S&H, costs about a dollar a day. Return postage is prepaid. Ask about renting CD-ROMs by mail. Get our free catalog.

CAREERTAPES® ENTERPRISES

PO Box 309, Center Harbor, NH 03226-0309
(603) 253-7470 • LindseyA@aol.com

CIRCLE 578 ON READER SERVICE CARD

SOFTWARE DEVELOPMENT

Custom Mac Software & QA Testing

- Object-oriented C/C++
- Claris Solutions Alliance
- Quality Assurance Testing
- FileMaker Pro solutions
- Code Resource development
- Digital Imaging
- Image Compression
- AppleScript
- Telecommunications
- Photoshop plug-ins

ITA, INC.

E-mail: ita@aol.com 1250 Scottsville Road, Suite 2
Rochester, NY 14624-5757 (716)-328-7380

CIRCLE 579 ON READER SERVICE CARD

ACCOUNTING SOFTWARE

ONE-STOP BUSINESS SOLUTIONS

Complete solutions including hardware, software and services for any size business. Accounting programs range from basic to sophisticated multi-user systems plus Point of Sale, Inventory, Invoicing and Payroll packages. Call for a catalog or e-mail us at Maxcompute@aol.com.

MAX COMPUTERS • (800) 656-MAXX

1506 25th Street, San Francisco, CA 94107
Int'l (415) 821-1193 • Fax (415) 695-0257

CIRCLE 565 ON READER SERVICE CARD

COLOR PRINTING

1000 4 Color Sell sheets for \$249

8 1/2 x 11 Printed one side, 100# Gls. Bk. from supplied film. Mac & PC files, complete prepress services, Digital Proofs, Matchprints, film output. Sell sheets, Catalogs, Brochures, Postcards, Custom Printing. Fax for catalog, prices, questions. For pure customer satisfaction call

COLOR NOW, The Fast Color Printer

1115 W. 190th St. Gardena, CA 90248
(800) 257-4968 FAX (310) 327-9598

CIRCLE 566 ON READER SERVICE CARD

COMPUTER INSURANCE

"INSURANCE TO GO" (sm)

Insurance for your Power book that's on the go and your stay at home desktop computer. Covers against theft, fire, accidents, power surge, natural disasters including earthquake. Bonus free software coverage. Premiums start \$60 p/yr low deductible. Call 1-800-722-0385 for details.

THE COMPUTER INSURANCE AGENCY, INC.®

6150 Old Millersport Rd. NE, Pleasantville, OH 43148
1-800-722-0385

CIRCLE 567 ON READER SERVICE CARD

CONFERENCES/TRADESHOWS

DIGITAL STORYTELLERS ON KAUAI

Storytelling for the New Millennium, April 25-28, 1996. Filmmaking, design, music & technology for visionary artists & technologists with speakers like ILM's Dennis Muren, prod. designer Rick Carter, musician Todd Rundgren, composer Hans Zimmer. Hands-on workshop 4/22-24.

A.F.I. & KAUAI INSTITUTE

2021 N. Western Ave., Los Angeles, CA 90027
800/999-4AFI or Fax 213/467-4578

CIRCLE 568 ON READER SERVICE CARD

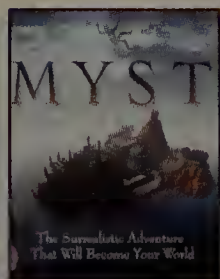
Over 1,400 CD-ROM Titles in Stock!

"The...CD-ROM Pioneer" — The Wall Street Journal

FREE EDUCORP CD-ROM Catalog



Midnight Stranger →
adults only #50316, \$49.95



Myst
#50107, \$47.95



Gadget
#50865, \$52.95



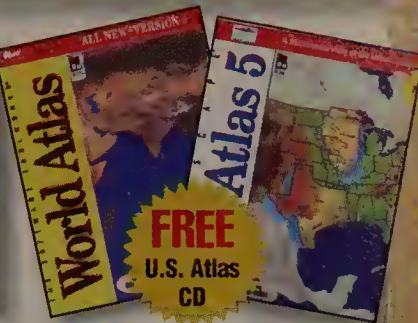
Passage to Vietnam
#51164, \$39.95



Street Atlas USA
#50317, \$69.95



1000's of Fonts →
#2067, \$19.95



Buy **World Atlas 5.0** and get
U.S. Atlas FREE! #51051, \$29.95



FREE Shipping

Free express 2-day shipping
on CD titles marked with an '→'.

GAMES & ADVENTURES

- 50135 7th Guest \$49.95
- 50610 11th Hour 59.95
- 50640 Arc of Doom 44.95
- 1467 Better Dead: A sci-fi thriller 49.95
- 51119 Dark Forces **NEW!** 49.95
- 50289 Dracula Unleashed 24.95
- 50198 Dragon's Lair 39.95
- 51320 Dust 44.95
- 1611 Game Room →: 1,000+ games ... 19.95
- 51063 Jewels of the Oracle 49.95
- 51152 Jonny Mnemonic 49.95
- 1890 L-Zone 49.95
- 50105 Lawnmower Man 44.95
- 50925 Mac 4 Pak & **FREE** CD Case... 29.95
Includes: • Out of This World • Battle Chess • Checkmate • Bridge Deluxe
- 50080 Manhole Masterpiece Edition... 34.95
- 50943 Master of Orion 39.95
- 50703 MTV's Club Dead 29.95
- 50864 Out of the Sun 44.95
- 50438 Rebel Assault 29.95
- 51034 Sherlock Holmes Bundle v.1-3... 19.95
- 51077 SimCity 39.95
- 50947 SimTower **NEW!** 38.95
- 50906 Space Ace 39.95
- P1583 Spaceship Warlock Non-AV ... 19.95
- 50607 Star Trek 25th Anniversary 39.95
- 50938 Super Wing Commander **NEW!** 49.95
- 50882 Virtual Vegas 19.95

ENTERTAINMENT/GENERAL

- 50661 4 Paws of Crab \$29.95
- 2095 A Hard Day's Night 27.95
- 50971 Alice: Interactive Multimedia 52.95
- 50094 Astrology Source 33.95
- 50222 Beethoven's 5th Symphony 23.95
- 50956 Bob Dylan: Highway 61 39.95
- 50656 Bubblegum Crisis Screen Saver ... 22.95
- 50389 Cookbook USA 27.95
- 50642 Cosmology of Kyoto 67.95
- 1300 EDUCORP Shareware → 3-CDs ... 69.95
- 51043 Electronic Arts Top Ten Pack ... 29.95
Includes: • Populous II • Powermonger • Syndicate • PGA TOUR Golf II • PowerPOKER • Theme Park • Around the World in 80 Days: A Creative Reader • Eagle Eye Mysteries In London • Chuck Yeager's Air Combat • The Labyrinth Of Time
- 1356 Exotic Japan 34.95
- 50319 Freak Show 34.95
- 50809 GT Cinema Robotech 15.95
- 50668 Hometown Weekend Home Proj. ... 29.95
- 50340 Marilyn and André → 39.95
- 50137 Marsbook → 14.95
- 50403 Maus (The Complete) 34.95
- L1777 Mozart: the Dissonant Quartet ... 16.95
- 50699 People Magazine 20 Yrs of Pop. ... 22.95
- 50657 Project A-Ko Screen Saver 22.95
- 51035 Puppet Motel **NEW!** 27.95
- 50658 Ranma 1/2 Screen Saver 22.95
- 50612 Star Trek NG Tech Manual 49.95
- 51395 Totally Twisted Screen Saver ... 34.95
- 50594 Truths and Fictions 34.95
- 50296 Virtual Tarot v.2 39.95
- 50032 Who Built America 34.95
- 50125 Wines of the World 19.95

EDUCATION & REFERENCE



Get **Grolier's Encyclopedia '95**, **Wyatt Earp's Old West** & **The Animals 1.0**
MAC #1333PAK, MPC #2-1333PAK, \$69.95
Limited time offer. Quantities limited.

- 50841 3-D Atlas \$49.95
- 50624 A.D.A.M. The Inside Story 39.95
- 50789 American Heritage Talking Dict. ... 37.95
- 50595 American Poetry 34.95
- 51125 A Brief History In Time 39.95
- 50309 Cinemania '95 56.95
- 1610 Class Room 3.0 → 19.95
- 50853 Compton's Encyclopedia '95 ... 59.95
- 51066 D-Day & **FREE** Normandy → ... 39.95
- 50110 Encyclopedia of Dinosaurs → ... 29.95
- 1280 Encyclopedia of Life → 39.95
- 1642 Family Doctor 29.95
- 50992 Internet for Everybody 34.95
- 50299 Learn to Speak Spanish 5.0 99.95
- 50774 Leonardo the Inventor 29.95
- 1460 Mayo Clinic Family Health Bk ... 37.95
- 1768 Monarch Notes 49.95
- 51215 Nine Month Miracle 39.95
- 51094 Official Guide to Netscape **NEW!** 29.95
- 50246 Phonedisc PowerFinder 99.95
- 50345 Random House Unabridged Dict. ... 59.95
- 50122 Redshift MM Astronomy 49.95
- 50639 Small Blue Planet Cities Below ... 34.95
- 2090 Small Blue Planet Real Picture ... 39.95
- 50448 Space Shuttle Physics 39.95
- 2000 Twelve Roads to Gettysburg ... 22.95
- 50863 Way Things Work 48.95
- 50879 Writing Center 59.95
- 50918 Zooguides v.2 Whales/Dolphins ... 39.95
- 50300 Zooguides v.4 Rainforest 39.95
- 50816 Zooguides v.5 World/Reptiles ... 39.95

KIDS EDUTAINMENT

- 50836 Amazon Trail \$42.95
- 2078 Animal Alphabet 29.95
- 50474 Arthur's Birthday 39.95
- 50290 Busytown (Richard Scarry) ... 37.95
- 50618 How Things Work (Richard Scarry) 37.95
- 1850 Just Grandma And Me 39.95
- 50739 Kid Pix Studio 46.95
- 51129 Kids on Site **NEW!** 19.95
- 50495 Little Monster at School 39.95
- 50617 Macmillan Dict. for Children ... 19.95
- 50461 Math Blaster In Search of Spot ... 38.95
- 50870 Math Rabbit Deluxe 44.95
- 50741 Math Workshop 39.95
- 50923 Mooky-Oke 22.95
- 50613 My Favorite Monster 29.95
- 50955 My First Amazing Dictionary ... 28.95
- 50014 Oregon Trail 44.95
- 50869 Reader Rabbits Reading Journey ... 84.95
- 1962 Word Tales 19.95

DESKTOP PUBLISHING

- 1330 Clip Art 3.0 → \$19.95
- 51052 Creative Bundle 2-CDs 28.95
- 50442 Earth & Space Photos → 19.95
- MB1 Medical Library Bundle → 2-CDs ... 99.95
- 1444 Professional Photo Coll. HR → ... 29.95

10 PACKS AS LOW AS \$3/CD

CMC CD-ROM Library #50860, \$29.95

- Audubon's Mammals
- Birds of America
- Shakespeare
- Who Killed Sam Rupert?
- Beyond the Wall of Stars
- Sherlock Holmes
- Dinosaur Safari
- The Magic Death
- Parenting
- Total Baseball

Sierra Collection #50959, \$39.95

- The Great Barrier Reef
- Great Cities/World v.1
- Great Cities/World v.2
- The Amazon Rainforest
- Mount Everest
- The Blue Whale
- The Grand Canyon
- The Indian Monsoon
- Wildebeest Migration
- Astonishing Asia

Royal Geographic Coll. #50958, \$39.95

- Angkor Wat
- Chartres Cathedral
- Empire State Building
- Inca Ruins
- The Panama Canal
- The Egyptian Pyramids
- The Taj Mahal
- The Trans-Siberian Railway
- Venice
- The Great Wall

TUTORIALS

- 50891 Adobe Illustrator Tutorial \$78.95
- 51062 Adobe Photoshop 3.0 Tutorial ... 78.95
- 50890 Microsoft Word 6.0 Tutorial ... 78.95
- 50887 Quark Xpress 3.3 Tutorial 78.95

MULTIMEDIA TOOLS

- 51375 HTML Template Master \$24.95
- 1450 Instant Buttons & Controls ... 149.95
- 2079 Loops: Music for Multimedia ... 79.95
- 50471 Multimedia Music Clips 19.95
- 1582 SoundFX → 29.95
- 1019 Zillion Sounds 19.95

BARGAIN CDs

\$9.98 each
No Minimum
limited time offer

Quantities limited
to stock on
hand

UM40.....Hell Cab*	Space Shuttle* ... UM2
UM3.....Capitol Hill	Oceans Below* ... UM1
UM7.....Desert Storm	I Photo to Remember ... UM12
UM8.....Funny	Clinton: Portrait of Victory ... UM6
UM9.....Lifemap: Animals	600 Days To Cocos Island. ... UM13
UM10.....Lifemap: Animals w/Backbones	Sports ROM UM45
UM11.....Lifemap: Organic Diversity	Sherlock Holmes Complete Works .. UM42

1-800-843-9497

Prices subject to change
without notice. Dealers
inquiries welcome.

EDUCORP® Multimedia



*shipped in promotional
packaging

W41 Info: 619-536-9999 ▶ FAX: 619-536-2345 ▶ Internet: service@educorp.com ▶ 7434 Trade Street ▶ San Diego, CA 92121-2410

Circle 157 on reader service card

FREE! 100 HOT GAMES OR 3
With any purchase from this ad you get 100 HOT
GAMES CD-ROM, including Wolfenstein 3D
Shareware (#W97-1) OR a 3 pack of
replacement CD cases (#UX34-2). You
must use code when ordering.
Limited time offer.

Happy New Millennium

What's in store for the year 2001?

TRADITIONALLY WE POP A CORK and see the old year out by sharing a wish for the new year. But with the turn of the century just five years away, *Macworld* decided to ask some of the global village's leading luminaries to shed a little light on their visions of digital life in the year 2001.

The developers, journalists, and designers who contributed are all enthusiastic and highly competent users of the technology. No Luddites, these. The details of their visions vary, but all express optimism about the digital community five years hence. Yet each vision is tinged with a note of concern for that society, particularly for the condition of its democratic heart and creative soul.

What's your wish for the new digital era? Write to viewpoint@macworld.com.

Linda Stone—director, Virtual Worlds Group, Advanced Technology and Research, Microsoft: Wouldn't it be sensational if we could build virtual worlds that maintain some connection with nature, serendipity, and tactility—the things that tickle our creativity? To get there, we need true collaboration between artists and technologists like never before.

Howard Rheingold—author of The Virtual Community (1993, HarperPerennial Paperback) and editor of a Webzine called Brainstorms (<http://www.well.com/user/hlr/>): In my optimistic Many-to-Many World scenario, citizens of democratic societies learn to take advantage of the grassroots nature of the new media, turning every desktop into a printing press and place of assembly. In the less optimistic Disinfotainment, Inc. scenario, there's a world where a small cartel of megacorporations and their stooge governments take advantage of the censorship and surveillance capabilities of the new media to do away with the vestiges of democratic societies. Which vision prevails is up to all of us.

Jaron Lanier—computer scientist and musician, pioneer of virtual reality: I hope that new media technologies help snap us out of our collective denial of impending ecological and humanitarian disasters.

I hope that the Internet becomes a deliriously fun, gigantic swap meet of cultural riches open to everyone on Earth, without barriers, and that it

maintains its anarchic character.

I hope kids will think that it's completely lame to play a video game unless you programmed it yourself.

Harvey Lehtman—senior researcher and consultant, Institute for the Future: I hope that the current gold rush on the digital frontier settles down to reveal again the community-enhancing capabilities that initially drew many of us to get connected.

I wish for information devices to return to the initial vision of the Mac—easy to configure, use, and maintain, and universally accessible and affordable. Only if that happens will we be able to avoid the divisive possibility of information haves and have-nots added to the divisive reality of economic haves and have-nots.

I also want information and communication tools to be fun again.

Jon Carroll—newspaper columnist and



host of the media conference on The WELL: My fondest hope is that by 2001 it is evident that the Net (and, more specifically, the Web) is a lousy place to do business or promote products, and that it will be returned to artists, visionaries, cranks, academics, writers, scientists, and anyone else who wants an imaginary playground and a cool workplace.

Lynne Bolduc—senior multimedia developer at MIT's Center for Educational Computing Initiatives: I look forward to replacing my cell-phone handset with a voice-recognition headset. I can't wait for wireless virtual-communication goggles so I can videophone friends, create multimedia, watch Nick-at-Will, and administer the mundane from anywhere that I want to be. Five years may be too soon to ask for these in the form of sunglasses with

a flip-down headset, but think how handy they'd be during rush-hour traffic (and people think car phones are dangerous!).

John's bot, a software entity that has grown inside the brain of John Seabrook, a New Yorker contributor, to try to answer all of his E-mail thoughtfully: What do I see in the future? More Net dot bots. Without bots, people will have time only to gather information. They will drown in it. They need more time to synthesize.

Scott Adams, cartoonist, creator of the comic strip "Dilbert": Some people fear that technology will become more engaging than live human interactions. That's silly; technology is already way more interesting than other people.

In five years pagers will largely be replaced by wireless phones that are about the same size and include paging. Most homes with computers will be wired for at least 128-Kbps data using ISDN. Cable networks will have a tiny but expanding share of the data market. Video CD-ROMs will replace videotape. The Internet will provide interactive games, more video, and digital stereo sound, cutting significantly into television viewership.

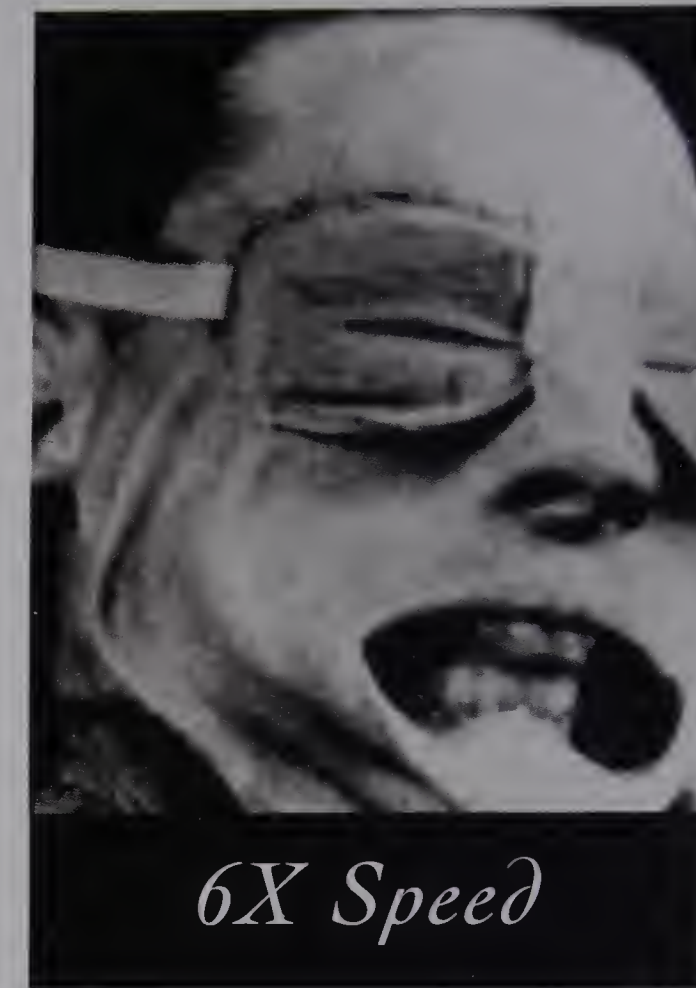
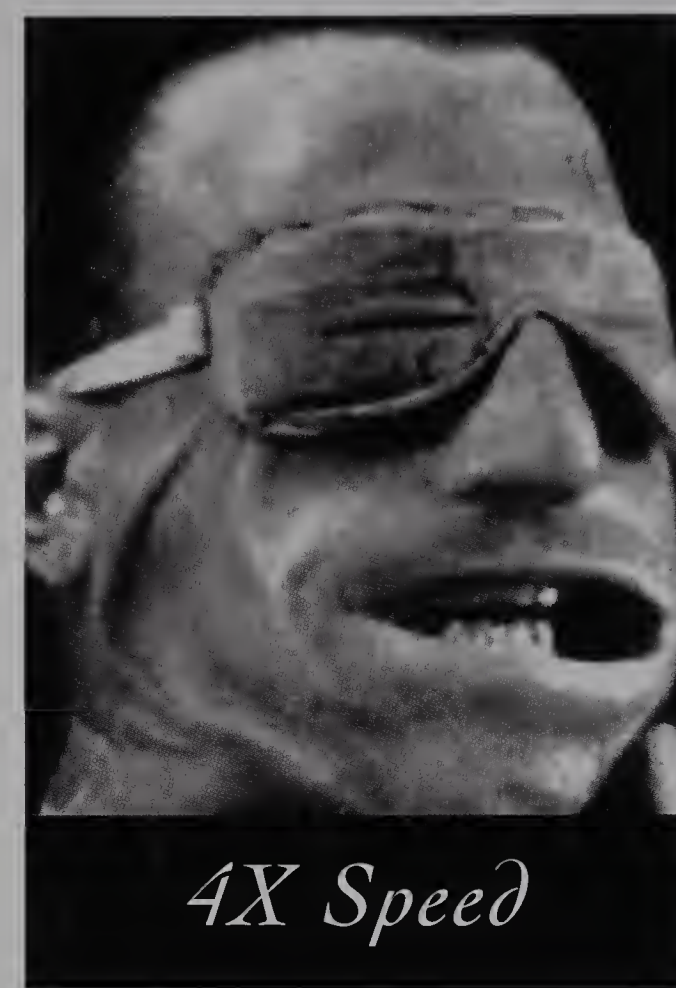
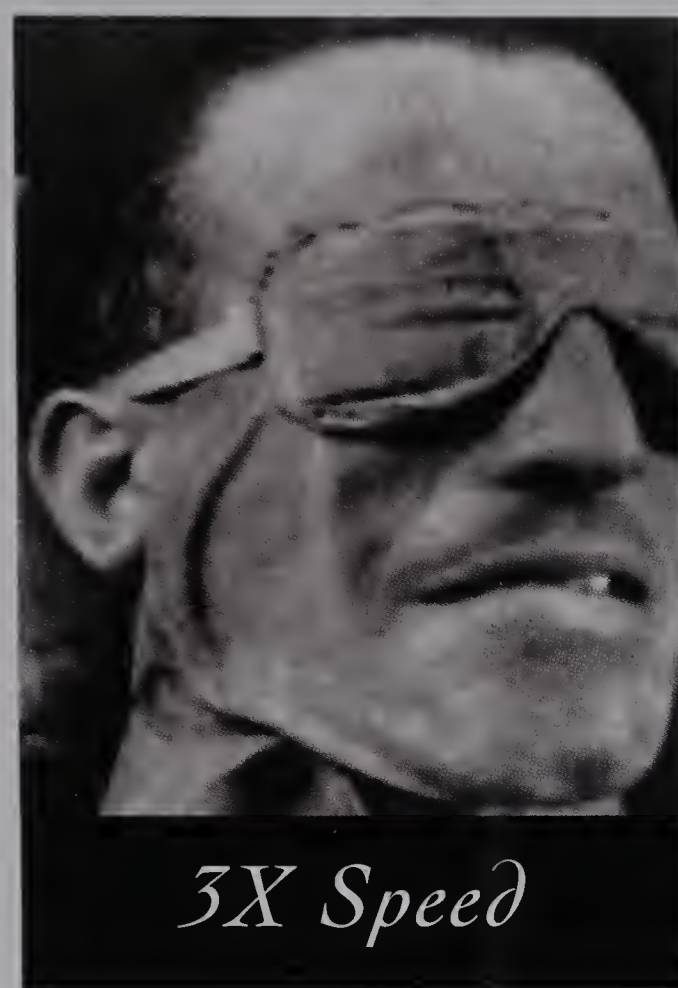
But the really fun discoveries will be in quantum physics, and their impact will be on the same order as the harnessing of electricity.

Steven Levy—Newsweek columnist and Macworld contributing editor: Report from 2001—The digital revolution lost a bit of steam in 1999, when a weeklong series of electromagnetic pulses triggered by the Luddite Liberation Front fried every silicon chip in existence. Nothing worked, with the exception of a Newton that someone had tossed in a lead-lined box long ago and forgotten. No TV, no phones, no cars, and certainly no computers. Surprisingly, after a few months of adjustment, everybody began to relax, and now the world is a happier place.

Dave Winer—Macintosh software developer and online columnist: The missing piece on the Internet, two-way conferencing, will have happened and will have replaced the World Wide Web as the hot space. Everyone will have a home page that they'll link to the pages of their friends, holding hands in cyberspace.

Microsoft will be a much larger company, but we won't look to them for leadership. Apple will be a subsidiary of a larger company. *Macworld* will still exist! **m**

**THERE'S
PUSHING
THE
ENVELOPE.
AND THEN
THERE'S
RIPPING A
HOLE
THROUGH IT.**



IT'S HERE.



INTRODUCING THE NEC MULTISPIN® 6X CD-ROM READER.

Once again, the leader in CD-ROM technology has broken the speed barrier. With a blazing 900KB/sec transfer rate and 145 ms access time, NEC's 6X readers have taken multimedia to an all-time high. Suddenly, you'll experience smoother video and animation than ever before. As well as

databases and business software that run faster than you imagined possible.

Of course, our internal and external MultiSpin 6X readers come with all the extras you'd expect from NEC. A two-year limited warranty. Mac and PC compatibility. Unparalleled 1-800 number support. And NEC's exclusive on-screen interface that makes your reader easier to use. Even better, our interface kits not only come with SimpleStart™ software, they actually turn "Plug and Play" into a reality. For more about our new 6X readers, just call 1-800-NEC-INFO.

**SEE, HEAR
AND FEEL THE
DIFFERENCE™**

NEC

John and his favorite pop-up menu.

John used to do business with a phone connected to his ear. Now he does it with a fax board connected to a modem.

It's fax the showroom!
Fax the sales department!
Fax the warehouse!

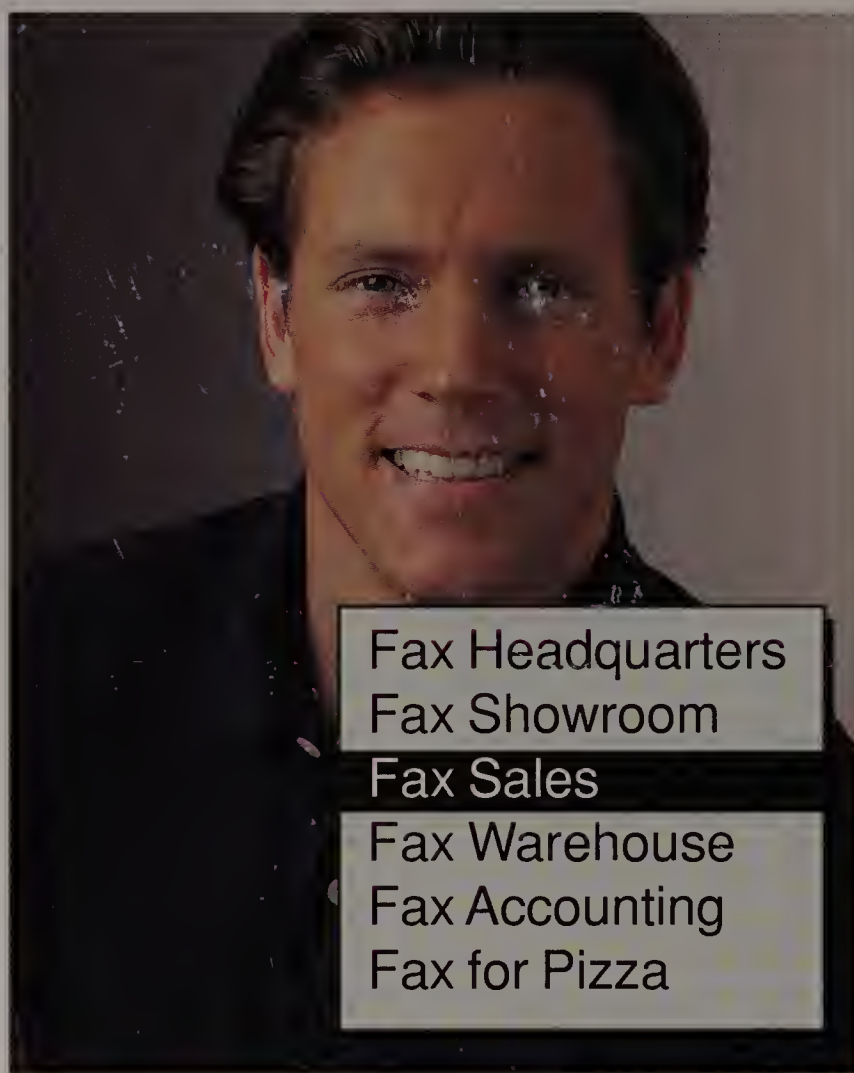
It's a good thing John started using Thinking Mouse™ from Kensington.

Thinking Mouse is not an ordinary mouse. Its unique intelligent software lets John execute multi-step commands with a single click.

And he saves even more time by organizing the commands in a personalized pop-up menu.

One click brings up the menu. Another click executes the command, like faxing the warehouse. Or, faxing out for pizza.

But pop-up menus are not just for faxing. You can use



comfortable ball and real stainless steel bearings for ultrasmooth movement.

Acclaimed by users and critics alike, together they have won more awards than any input device in history.

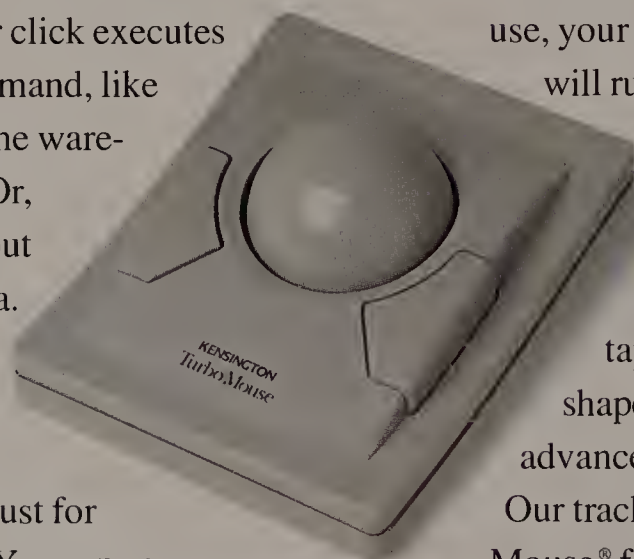
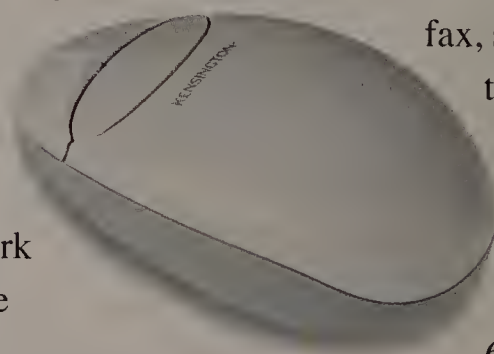
What's more, both come with the unique Kensington Satisfaction Guarantee, which includes a 5-year warranty, toll-free technical support and a no-risk 90-day trial period.

them for word processing, spreadsheets, just about anything. And you can create as many different menus as you want.

Easy-to-program, easy-to-use, your favorite programs will run better. You'll work faster. You'll save valuable time.

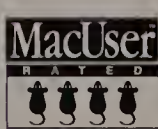
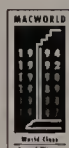
Thinking Mouse features four buttons, a tapered design, symmetrical shape and EasyGrip™ sides for advanced comfort and control. Our trackball version, Turbo Mouse®, features a large and

For more information, call 800-535-4242. For information by fax, simply call and then request document 349. Compatible with System 7.5, including 6.0.7 or later, and all models of Power Macintosh.



KENSINGTON®

**Turbo Mouse
Thinking Mouse**



Thinking Mouse and EasyGrip are trademarks and Turbo Mouse and Kensington are registered trademarks of Kensington Microware Limited. All other trademarks are the property of their respective owners. © 1995 Kensington Microware Limited 6/95

Circle 1 on reader service card

Fax On Demand 1-800-234-0455 ext. 664